Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
March 09, 2022

Mr. Rick Shean, Bureau 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 Report for CBFO Audit A-22-02 of the Savannah River Site/Central Characterization Program

Dear Mr. Shean:

This letter transmits the Final Audit Report for Carlsbad Field Office (CBFO) Audit A-22-02 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. The audit was conducted December 6 – 9, 2021.

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 Micheal Stapleton, Quality Assurance Specialist, CBFO Quality Assurance Division, at (814) 421-3322 should you have any questions concerning this audit report.

Sincerely,

REINHARD KNERR Digitally signed by REINHARD KNERR
Date: 2022.03.09 08:56:44 -07'00'

Reinhard Knerr
Manager
Carlsbad Field Office

Enclosure

CBFO:QAD:MS:JM:22-0138:UFC 2300.00

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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 ACTIVITIES
IN
E- AND K-AREAs

CARLSBAD, NEW MEXICO

AUDIT NUMBER A-22-02

December 6 – 9, 2021

Prepared by: PRISCILLA YANEZ (Affiliate) Digitally signed by PRISCILLA YANEZ (Affiliate) Date: 2022.03.07 07:23:49 -07'00' **Date:** _____

Priscilla Yanez, CTAC
Audit Team Leader

Approved by: DARREN JOLLEY Digitally signed by DARREN JOLLEY Date: 2022.03.08 08:59:37 -07'00' **Date:** _____

Darren Jolley, Director
CBFO Quality Assurance Division

1.0 EXECUTIVE SUMMARY

U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Recertification Audit A-22-02 of the Savannah River Site (SRS) E-Area, including the initial certification of new waste characterization activities in K-Area, was performed to evaluate the adequacy, implementation, and effectiveness of transuranic (TRU) waste characterization activities performed at the SRS by the Nuclear Waste Partnership LLC (NWP) Central Characterization Program (CCP). The audit team evaluated the programs, procedures, and processes for characterizing contact-handled (CH) Summary Category Group (SCG) S5000 debris waste. The audit team also evaluated activities in E-Area for enhanced Acceptable Knowledge (AK) products for previously certified CH TRU SCGs S3000 solids waste and S4000 soils waste, in addition to 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* (WAC), the *CBFO Quality Assurance Program Document* (QAPD), and the *Waste Isolation Pilot Plant Documented Safety Analysis* (DSA), Chapter 18.

Due to heightened awareness and to decrease the potential development, spread, and impact of the acute respiratory illness, COVID-19, a limited number of audit team members traveled to the SRS to perform the audit on December 6 - 9, 2021. Some audit activities were conducted remotely and via teleconference.

The HWFP issued to the WIPP by the New Mexico Environment Department (NMED) requires that the DOE conduct audits of each generator/storage site prior to certifying that the site meets the waste characterization requirements for shipment of waste to the WIPP. In accordance with Attachment C6 of the HWFP, audits must be performed at least annually after the initial audit to determine continued compliance with the HWFP Waste Analysis Plan (WAP).

The audit team concluded that the SRS TRU waste characterization program procedures for characterizing CH SCG S5000 debris waste adequately address upper-tier requirements. The processes for characterizing CH SCG S5000 debris waste were satisfactorily implemented and effective in achieving the desired results.

Due to the scope of this audit, the audit team's focus for recertification of characterization activities for CH SCGs S3000 and S4000 wastes was applied to those performed using the Enhanced Acceptable Knowledge (EAK) process at E-Area. The EAK process for characterization of CH SCGs S3000 and S4000 wastes was satisfactorily implemented and effective in achieving the desired results.

No WIPP HWFP WAP-affecting conditions adverse to quality (CAQs) or WAP-affecting Observations were identified during the audit. Six non-WAP-affecting CAQs were identified during the audit. Four were identified as corrective action reports (CARs) (see

section 6.1.2), and two were corrected during the audit (CDA) (see section 6.2.2). No non-WAP-affecting Observations were identified during the audit and no concerns were offered as Recommendations for management's consideration.

2.0 SCOPE AND PURPOSE

2.1 Scope

The scope of the audit included evaluations for the adequacy, implementation, and effectiveness of the technical and quality assurance activities performed by the NWP CCP at the SRS for characterization of CH SCG S5000 debris waste in E- and K-Areas. Also, the scope included an evaluation of the EAK process for previously certified CH TRU SCGs S3000 and S4000 waste from E-Area. The audit team verified a technical review of the generator site's processes was performed per DOE/WIPP-16-3564, Rev. 2, *Generator Site Technical Review Procedure*. Some audit activities were conducted remotely and via teleconference. Transportation and Visual Examination activities were not included in the scope of this 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) (non-WAP-related)

WAP-Related Quality Assurance Activities

- Control of Nonconforming Items
- Personnel Qualification and Training
- Records

Non-WAP-Related Quality Assurance Activities

- SRS-CCP Program Interface

WAP-Related Technical Activities

- Acceptable Knowledge (AK)
- Project-Level Data Validation and Verification (PL V&V)
- Real-Time Radiography (RTR)
- WIPP Waste Information System/Waste Data System (WWIS/WDS)

Non-WAP-Related Technical Activities

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

The evaluation of adequacy of SRS-CCP documents was based on current versions of the following:

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

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

- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan* (QAPjP)
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-004, *CCP/SRS Interface Document*
- Related CCP Quality Assurance (QA) and technical implementing procedures

2.2 Purpose

Audit A-22-02 was conducted to evaluate the adequacy and effective implementation of program requirements for the characterization and certification of CH SCG S5000 debris waste at the SRS K-Area, the recertification of waste characterization processes for CH SCG S5000 debris waste in the E-Area, and the EAK process for previously certified CH SCGs S3000 solids waste and S4000 soils waste for compliance with applicable upper-tier requirements.

3.0 AUDIT TEAM, MANAGEMENT REPRESENTATIVE, TECHNICAL SPECIALISTS, AND OBSERVERS

Darren Jolley	CBFO Quality Assurance Division (QAD) Director
Micheal Stapleton	CBFO QAD Management Representative
Priscilla Yanez	Audit Team Leader (ATL), CBFO Technical Assistance Contract (CTAC)
Rick Castillo	Auditor/ATL Support, CTAC (Program Status, GSTR)
Paul Gilbert	Auditor, CTAC (C6 QA, WWIS/WDS)
Bob Prentiss	Auditor, CTAC (C6 QA Training/Records)
Maria Escarcega	Auditor, CTAC (AK QA)
Tim Boswell	Auditor, CTAC (RTR QA)

Steve Shafer	Auditor, CTAC (NDA QA)
Cindi Castillo	Auditor, CTAC (Interface, QA Program & Organization)
Dale Dover	Auditor-in-Training, CTAC (PLV&V, CM)
Richard Blauvelt	Technical Specialist, CTAC (AK)
Randy Fitzgerald	Technical Specialist, CTAC (AK)
Paul Gomez	Technical Specialist, CTAC (PL/FGA/CM)
Shelly Gomez	Technical Specialist (RTR)
Jim Oliver	Technical Specialist (NDA/PDP)

OBSERVERS

Tom Carver	CBFO Office of the National TRU Program (ONTP)
Joe Lopez	CBFO QAD
Ricardo Maestas	New Mexico Environment Department (NMED)
David Biswell	NMED
Megan McLean	NMED
Natalie Barta	NMED
Robert Toro	Environmental Management (EM)-3.113
James Grambrell	EM-3.113
Douglas Brown	Defense Nuclear Facilities Safety Board (DNFSB)

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 December 6, 2021, at the SRS and via teleconference. Daily management briefings were held to update SRS-CCP management and staff on audit progress and identified concerns. The audit was concluded with a post-audit meeting held on December 9, 2021, at the SRS 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 lists 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 SCG S5000 debris waste from E-Area 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 previously certified CH TRU SCGs S3000 and

S4000 wastes from E-Area. The capability of waste characterization field activities for E-Area was evaluated and observed during the audit.

The SRS-CCP K-Area was assessed to verify the characterization of CH TRU SCG S5000 debris waste 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, WWIS/WDS data entry, DQO reconciliation, and CM. The capability of waste characterization field activities for K-Area was evaluated and observed during the audit.

The audit team concluded that, based on personnel interviews and review of associated documentation and records, the SRS-CCP TRU waste characterization program and activities for CH TRU SCG S5000 debris waste in E- and K-Areas, along with the EAK for previously certified CH TRU SCGs S3000 and S4000 waste from E-Area, adequately address upper-tier requirements. The processes utilized for characterizing CH TRU SCG S5000 debris wastes, along with the EAK process for previously certified CH TRU SCGs S3000 and S4000 waste from E-Area, were satisfactorily implemented and effective in achieving the desired results.

5.2 General Activities

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

- CCP-PO-001, Rev. 23, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, Rev. 31, *CCP Transuranic Waste Certification Plan*
- DOE/WIPP-16-3564, Rev. 2, *Generator Site Technical Review Procedure*

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

5.2.1 Results of Previous Audits

The audit team examined the results of the previous CBFO Recertification/Certification Audits of the SRS-CCP (A-21-02 and A-21-08), including the E-Area. In the previous audits, two non-WAP-affecting CAQs, two non-WAP-affecting Observations, and one Recommendation were identified. One CAQ resulted in the issuance of CAR 21-009 in the area of RTR, and the other CAQ resulted in a CDA in the area of AK.

During the performance of this audit, the audit team verified sustained corrective actions and did not identify any similar instances of the CAQs identified during the previous audits. The audit team verified the corrective actions have been adequate in precluding recurrence.

There are no results to examine from a previous audit for the SRS K-Area. This audit serves as the initial certification audit of the SRS-CCP for K-Area.

5.2.2 Changes in Programs or Operations

The audit team verified the changes made since the previous audits in the E-Area included relocating the RTR, Unit 8, from the E-Area to the K-Area, and installing the RTR Unit 2 in the E-Area. Other notable changes since the previous audits included SRS-CCP performing operational activities in the K-Area utilizing High Energy Neutron Counter (HENC) Units 4 & 5.

There are no changes in programs or operations to observe in the SRS K-Area. This audit serves as the initial certification audit of the SRS-CCP for K-Area.

5.2.3 New Programs or Activities Being Implemented

The audit team verified the installation of RTR Unit 2 in the E-Area was a new activity performed since the previous audits.

All SRS-CCP activities being implemented in the K-Area are new. New activities being implemented in the K-Area include performing operational/characterization activities utilizing HENC Units 4 & 5, and relocating the RTR, Unit 8, from the E-Area to the K-Area.

5.2.4 Changes in Key Personnel

The audit team determined through an interview with the SRS-CCP Site Project Manager (SPM) that changes in key personnel since the previous audits include one new SRS-CCP SPM, one new Vendor Project Manager (VPM), and one new Acceptable Knowledge Expert (AKE). One VPM has left the project and one SPM was added as a backup SPM.

5.2.5 Generator Site Technical Review (non-WAP-related)

The CBFO and NWP, as WIPP HWFP co-permittees, performed Generator Site Technical Review (GSTR) SR-1-17-01 at the SRS, July 17 – 21, 2017. The GSTR Final Report was issued on February 20, 2018 (CBFO:ONTP:CF:RMS:17-2377:UFC 5900.00). The GSTR team completed their review of the program. SRS satisfactorily addressed and resolved all 12 of the identified issues related to the GSTR, and the GSTR closure letter was issued on March 28, 2018 (CBFO:ONTP:CF:RMS:18-0595:UFC 5900.00).

The CBFO and NWP, as WIPP HWFP co-permittees, performed GSTR SR-2-21-0 at the SRS, August 16 – 19, 2021. This GSTR was a Level 2 supplemental review to the original GSTR. The focus of the review was on the plutonium oxide (PuOx) down blending processes at the K-Area. The GSTR team completed their review of the

program, and the final report has gone through a factual accuracy review with SRS personnel. The GSTR Final Report was transmitted on November 18, 2021, to the DOE Environmental Management, SRS Office, SRS (CBFO:ONTP:DF:RMS:1-0000:UFC 5900.00), requesting a response to the five identified issues. SRS is currently in the process of addressing and resolving the issues identified during the GSTR. The GSTR closure letter had not been issued at the time of the audit.

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 procedures to determine the degree to which the procedures adequately address upper-tier requirements:

- CCP-PO-047, Rev. 3, *CCP Training and Qualification Program Document*
- CCP-QP-002, Rev. 47, *CCP Training and Qualification Plan*
- CCP-QP-041, Rev. 5, *CCP Job Needs Analysis and Design*
- CCP-QP-042, Rev. 3, *CCP Project Level Training and Qualification*
- CCP-QP-043, Rev. 5, *CCP Operations Level Training and Qualification*

Results of the review indicate that the 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 that personnel performing waste characterization and certification activities are appropriately qualified.

Record reviews included an evaluation of the SRS-CCP CH List of Qualified Individuals (LOQI) dated December 6, 2021. Other record reviews included qualification cards and pertinent supporting qualification documentation, such as: appointment letters for VE experts (VEEs) and subject matter experts (SMEs), and eye examinations.

The procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for personnel qualification and training are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No 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 implementing procedure CCP-QP-005, Rev. 28, *CCP TRU Nonconforming Item Reporting and Control,* to determine the degree to which the procedure adequately addresses upper-tier requirements. Results of the review indicate that the procedure adequately addresses upper-tier requirements.

The audit team interviewed a CCP QA Engineer and selected a random sample of nonconformance reports (NCRs) for review.

The following closed NCRs were reviewed:

Number/Revision
NCR-SRS-0600-20, R0
NCR-SRS-0601-20, R0
NCR-SRS-0632-20, R1
NCR-SRS-0796-21, R0
NCR-SRS-0801-21, R0
NCR-SRS-0802-21, R1
NCR-SRS-0803-21, R1
NCR-SRS-0804-21, R1
NCR-SRS-0805-21, R0
NCR-SRS-0806-21, R0
NCR-SRS-0807-21, R0

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 that there were no NCRs generated at the SPM level within the last 12 months that required reporting to the Permittee.

The team concluded that nonconformances are appropriately documented and tracked through resolution, or voided in accordance with the procedure. NCRs reviewed included original and revised NCRs and all applicable supporting documentation in the records package. The NCRs examined were verified to have been entered, managed, and tracked in the NCR log/module located within the CCP Integrated Data Center (IDC).

The procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for nonconformances are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results. No 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. 23, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-QP-008, Rev. 27, *CCP Records Management*
- CCP-QP-028, Rev. 17, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*

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

The level of control for QA records was verified through review of the Records Inventory and Disposition Schedule (RIDS) dated April 6, 2021, for NWP/CCP CH (All Sites) and the RIDS dated April 6, 2021, for NWP/CCP General. The RIDS are reviewed annually by the CCP Records Manager, as required. 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 through the use of 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 separate from other documents. Records personnel are familiar with requirements for restricted access files and adequately control distribution. Access to electronic files and restricted files are 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 documentation assembled provided evidence that the applicable requirements for records are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the

desired results. No 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 quality assurance area audited is discussed in detail in the following sections. The method used to select objective evidence is discussed; the objective evidence used to assess compliance with the 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 SRS, in CCP-PO-004, Revision 40, *CCP/SRS Interface Document*. The team also evaluated CCP-PO-043, Revisions 0 and 1, *CCP Interface Document Preparation.* CCP-PO-004 describes the interfaces, roles and responsibilities, and program requirements applicable to organizations in support of CCP waste characterization activities at the SRS. The current revision (40) of CCP-PO-004 now includes new responsibilities and interface requirements regarding characterization of waste containers from the SRS K-Area Complex.

An adequacy review was performed on the interface document against requirements found in CCP-PO-043, *CCP Interface Document Preparation*, to ensure it contained the required flow-down requirements. Interviews were conducted with the SRS-CCP SPM and VPM.

An evaluation of records applicable to the interface agreements was also conducted. The audit team reviewed production reports; operational logbook entries; management assessment and SRS QA surveillance reports; measuring & test equipment (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); NWP QA surveillance reports of waste characterization activities at SRS; and other documentation required by the interface agreements.

The audit team reviewed a report of the most recent CCP management assessment at SRS. CCP conducted Management Assessment MA-CCP-008-20, on July 21, 2020. This assessment evaluated readiness activities for CCP to reestablish characterization activities at Area-E at SRS. The assessment resulted in five conditions requiring resolution, two Recommendations, and two Programmatic Strengths. CCP is in the process of finalizing a programmatic-wide management assessment (MA-CCP-0009-21) on conduct of operations activities to include activities at SRS. This assessment was initiated in September 2021.

The audit team identified two concerns in the area of Interface regarding requirements to perform management assessments. The first concern regarded Issue Notices not

being generated for five conditions that were identified in Management Assessment MA-CCP-008-20, which required resolution tracking. During the audit, CCP generated Issue Notice WIPP-ISSUE-21-2273 showing evidence that the five conditions are being tracked until resolution (see CDA 1 in section 6.2.2). The second concern regarded management assessments not being performed by all levels of management within the CCP organization annually, as required (see CAR 22-003 in section 6.1.2).

With the exception of the above mentioned concerns, the procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for the interface document are adequately established, meet upper-tier requirements, are satisfactorily implemented, and are effective in achieving the desired results.

5.4.2 Organization and QA Program

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

- WP 13-1, Rev. 40, *NWP Quality Assurance Program Description*
- WP 13-QA.03, Rev. 31, *Quality Assurance Independent Assessment Program*
- CCP-PO-001, Rev. 23, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, Rev. 31, *CCP Transuranic Waste Certification Plan*

The CBFO performs an annual audit of the CCP for all generator sites to verify the overall adequacy, implementation, and effectiveness of NWP/CCP's QA Program for activities in support of the 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 (A-21-14) was conducted by CBFO on March 2-4, 2021.

The overall NWP 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 5.0.

The audit team interviewed QA management personnel and reviewed documentation, including organizational charts. 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 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 QA reports were provided

to the SPMs and the CBFO during the semiannual periods of July 1, through December 31, 2020, and January 1, through June 30, 2021. Verification and review of the reports indicated that all relevant information for QA activities during these periods were reported in accordance with implementing procedures.

No concerns were identified. 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.

5.5 WAP-Related Technical Activities

Each technical area audited is discussed in detail in the following sections. The method used to select objective evidence is discussed, the objective evidence used to assess compliance with the 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 (BDRs), sampling records, and personnel qualification and training documentation were included in the evaluation. Each characterization process involves:

- Collecting raw data
- Collecting QA/quality control 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 data quality objectives (DQOs)
- Reporting the final waste characterization information to the WIPP

The flow of data from the point of generation to inclusion in the waste stream profile form (WSPF) was reviewed to ensure that all applicable requirements were captured in the site operating procedures for the E-Area. The waste stream for the K-Area is new and has no developed WSPF and container information summary (CIS) pending

approval of transuranic waste content (TRUCON) code. The specific procedures audited and the objective evidence reviewed are described in the following sections.

During the audit, SRS-CCP demonstrated compliance with the waste characterization requirements of the WAP through interviews and documentation.

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. 3, *CCP Project Level Training and Qualification*
- CCP-TP-001, Rev. 23, *CCP Project Level Data Validation and Verification*
- CCP-TP-002, Rev. 29, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-005, Rev. 32, *CCP Acceptable Knowledge Documentation*

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

The audit team verified that the SPM who conducted work for SRS-CCP in 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 K-Area to verify that PL V&V activities are performed in compliance with applicable procedural requirements:

RTR
- SR-RTR8-21-0001
- SR-RTR8-21-0005
- SR-RTR8-21-0011
- SR-RTR8-21-0017
- SR-RTR8-21-0021

NDA
- SR-HENC4-0002
- SR-HENC4-0010
- SR-HENC4-0018
- SR-HENC5-0008
- SR-HENC5-0012
- SR-HENC5-0019

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

NDA
- SR-MILCC6-0030
- SR-MILCC6-0033
- SR-MILCC6-0037
- SR-MILCC6-0039

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

The audit team verified AKSR CCP-AK-SRS-23, Rev. 1. This waste stream is new and has no developed WSPF and CIS pending approval of TRUCON code. This AKSR supports all the BDRs that are reported through the SPM for this audit.

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

- CP:21:01208 Request of 3rd Quarter 2021 RTR Quarterly Repeat of DGL Review, Validation and Verification at the SRS
- CP:21:01244 Results of Quarterly Repeat DGL Review for RTR: 3rd Quarter 2021

No concerns were identified in PL V&V activities.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that 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 the following implementing procedure relative to the WWIS/WDS data entry process to determine the degree to which the procedure adequately addresses upper-tier requirements:

- CCP-TP-030, Rev. 40, *CCP CH TRU Waste Certification and WWIS/WDS Data Entry*

Results of the review indicate that 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 CIS, 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 reviewed.

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

- PAD12TMP2A from waste stream SR-W027-773A-HET
- SR46068OA from waste stream SR-MD-PAD1
- SR21524414 from waste stream SR-W027-HBL-BOX
- SR21524414 from waste stream SR-W027-HBL-BOX
- SR21524414 from waste stream SR-W027-HBL-BOX
- WMAPSWB580 from waste stream SR-W027-221H-HET

The SRS CH containers listed above were certified under the current procedural process from CCP-TP-030, Rev. 40, which provides certification for using modules of the IDC. The audit team determined that 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 that WCO personnel have not received containers for certification that exceed the WIPP WAC Plutonium-Equivalent Curie (PE-Ci) limit requiring a USQD.

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

The procedures reviewed and objective evidence assembled provided evidence that 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

E-Area

The 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. 23, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-QP-002, Rev. 47, *CCP Training and Qualification Plan*
- CCP-QP-005, Rev. 28, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, Rev. 27, *CCP Records Management*
- CCP-QP-042, Rev. 3, *CCP Project Level Training and Qualification*
- CCP-TP-001, Rev. 23, *CCP Project Level Data Validation and Verification*
- CCP-TP-002, Rev. 29, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-005, Rev. 32, *CCP Acceptable Knowledge Documentation*
- CCP-TP-200, Rev. 7, *Enhanced Acceptable Knowledge Review*
- WP 13-QA.03, Rev. 32, *QA Independent Assessment Program*

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

The scope of this Recertification Audit for the E-Area was focused on examination of the AK record for the CH SCGs for which SRS is certified. Those SCGs are S5000 debris, S4000 soils/gravel, and S3000 solids. For the S4000 soils/gravel, there is only one waste stream, SR-MD-SOIL, that represents contaminated soil, primarily from underground pipe leaks, and is described in AKSR CCP-AK-SRS-8, Rev. 9. The audit scope directed an AK review of the Enhanced AK products only, and supporting documentation for this waste stream. The S5000 debris and S3000 solids waste streams selected by the audit team were SR-SDD-HET-A and SR-SDD-HOM-A, respectively. Both of these waste streams are described in AKSR CCP-AK-SRS-13, Rev. 5. Both waste streams are the result of deactivation and decommissioning of tanks supporting liquids management primarily in support of the F Canyon. The audit scope directed an evaluation of Enhanced AK products only, and supporting documentation review for the SR-SDD-HOM-A waste stream. For the S5000 waste stream SR-SDD-HET-A, a review of the entire AK record was performed.

The audit team evaluated compliance with the most recent WAP requirements listed in the C6-2 checklist, along with portions of the C6-1 and C6-3 checklists, as well as the requirements of the WIPP WAC, Rev. 10.

AKSR CCP-AK-SRS-13, Rev. 9, was reviewed by the audit team with respect to the information that relates to specific WAP and WIPP WAC requirements. It was examined along with relevant AK Source Documents to verify support for the waste stream description and relevant WAP and WAC required parameters, including description of waste processing activities, assignment of hazardous waste numbers (HWNs), identification of the two most prevalent radionuclides, and waste stream

volume and period of generation. The auditors examined the most current WSPF and attachments.

The audit team also examined the following completed AK attachments from CCP-TP-005 for this waste stream:

- Attachment 1 - AK Documentation Checklist
- Attachment 4 - AK Source Document Information List
- Attachment 5 - AK Hazardous Constituents List
- 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 List, along with AK/NDA memo for the CH waste stream
- Attachment 8 - Waste Container List, along with the two 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 assure that 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 characterization, and the requisite AK Reevaluation forms to demonstrate that the CCP has adequate procedures in place to address relevant requirements. Examples of NCRs dealing with prohibited items identified during characterization were examined and compiled as objective evidence. The latest AK Accuracy Report was also examined.

The WAP-required traceability exercise was conducted by the audit team for a total of nine waste containers selected from the waste streams examined. Although not required, this exercise was conducted for those waste streams for which Enhanced AK product review only was directed. For the nine containers selected, the auditors examined BDRs for RTR and NDA. Additional traceability documentation was collected through IDC database screenshots, the AK Tracking Spreadsheet data, the AK Waste Container List, and SRS waste container input forms completed by the waste generators.

Enhanced Acceptable Knowledge Products

With regard to Enhanced AK products for the waste stream reviewed, the following documents were examined during the audit.

Interface Waste Management Documents List
There were no IWMDLs presented for the waste streams reviewed.

Acceptable Knowledge Assessments
Three AKAs were reviewed as follows: AKA20 for waste stream SR-SDD-HET-A; AKA21 for waste stream SR-SDD-HOM-A; and AKA27 for waste stream SR-MD-SOIL.

In addition to the AKA contents, including both historic and current remediation and repackaging waste management practices and procedures and a list of applicable absorbents, the auditors reviewed a detailed description of the contents of each waste container bounded 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.

Chemical Compatibility Evaluation

Two Chemical Compatibility Evaluations (CCEs) were reviewed by the audit team. CCE09 covers both the SR-SDD-HET-A and SR-SDD-HOM-A waste streams. CCE13 addresses waste stream SR-MD-SOIL. In addition to a detailed examination 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 as objective evidence Document Review Records (DRRs) 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 also examined.

Basis of Knowledge

For the three waste streams reviewed, there were four Basis of Knowledge (BoK) memos available for review. BoK41 is an exempt memo for the SR-MD-SOIL waste stream that documents and validates the absence of oxidizing chemicals. BoK37 is an exempt memo for a subpopulation of waste stream SR-SDD-HET-A that documents and validates the absence of oxidizing chemicals in the waste container and the absence of rags/wipes that may have come in contact with oxidizing chemicals. BoK30 is a memo for a subpopulation of SR-SDD-HET-A that applies the requirements of "Basis of Knowledge for Evaluating Oxidizing Chemicals in TRU Waste," DOE/WIPP-17-3589, Rev. 1, to demonstrate compliance. BoK31 is a memo for waste stream SR-SDD-HOM-A that also applies the BoK procedure requirements to the containers to demonstrate compliance. In addition to the memos, the auditors examined review comments as available.

AK Briefings

When an AKSR is issued or revised, a presentation is prepared and provided to requisite CCP waste characterization staff and appropriate generator site personnel. Since the AKSRs reviewed have not been revised recently, no AK Briefings have been prepared.

K-Area

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

- CCP-PO-001, Rev. 23, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-QP-002, Rev. 47, *CCP Training and Qualification Plan*

- CCP-QP-005, Rev. 28, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, Rev. 27, *Records Management*
- CCP-QP-042, Rev. 3, *CCP Project Level Training and Qualification*
- CCP-TP-001, Rev. 23, *CCP Project Level Data Validation and Verification*
- CCP-TP-002, Rev. 29, *CCP Reconciliation of DQOs and Reporting Characterization Data*
- CCP-TP-005, Rev. 32, *CCP Acceptable Knowledge Documentation*
- CCP-TP-200, Rev. 7, *Enhanced Acceptable Knowledge Review*
- WP 13-QA.03, Rev. 32, *QA Independent Assessment Program*

Results of the review indicate that the procedures adequately address upper-tier requirements as noted below

The AK audit team evaluated the AK process for characterizing CH SCG S5000 debris waste. The team specifically evaluated compliance with the most recent HWFP WAP requirements listed in the C6-2 checklist, along with portions of the C6-1 checklist, as well as the requirements of the WIPP WAC, Rev. 10, Appendix H, including the development of Enhanced AK products. Objective evidence was reviewed and compiled to demonstrate compliance with each of the applicable requirements.

The auditors reviewed the latest revision to the AKSR for the S5000 waste stream of interest in the SRS K-Area. The waste stream is the result of a down blend of plutonium oxide. The AKSR and waste stream designation are as follows:

- CCP-AK-SRS-23, Rev. 1, for waste stream SR-KAC-PuOx.

This AKSR was reviewed by the audit team with respect to the information that relates to specific HWFP WAP and WIPP WAC requirements. The AKSR was examined, along with relevant AK Source Documents, to verify support for the waste stream descriptions and relevant WAP or WAC required parameters, including descriptions of waste processing activities, assignment of HWNs, identification of the two most prevalent radionuclides, and waste stream volumes and period of generation.

The audit team also examined the following completed AK attachments from CCP-TP-005 for SR-KAC-PuOx:

- Attachment 1 - AK Documentation Checklist
- Attachment 4 - AK Source Document Information List
- Attachment 5 - AK Hazardous Constituents List
- 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 List, along with AK/NDA memos for the CH waste streams
- Attachment 8 - Waste Container List, along with the 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 are examined to assure that the assignment is appropriate.

The auditors also examined the latest CH AK Tracking Spreadsheet and reconciled that data with the Waste Container List (Attachment 8) and applicable AK documentation.

The audit team reviewed examples of discrepancies in the AK record to demonstrate that CCP has adequate procedures in place. Available waste stream characterization checklists reconciling the results of the characterization activities with the corresponding information in the AK record were examined for this waste stream.

The WAP-required traceability exercise was conducted by the audit team for a total of three waste containers selected from the waste stream examined. For the three containers selected, the auditors examined BDRs for RTR and NDA. Additional traceability documentation was collected through IDC database screenshots, AK Tracking Spreadsheet data, AK waste container lists, and SRS generator waste container input forms, as applicable.

Enhanced Acceptable Knowledge Products

With regard to Enhanced AK products for the waste stream reviewed, the following documents were examined during the audit.

Interface Waste Management Documents List
The WIPP WAC, Rev. 10, restored the IWMDL (AK Attachment 9) as one of the Enhanced AK products required, as appropriate, to support shipment of a waste stream to the WIPP, although the necessary revision to the DSA has not been completed. Nevertheless, CCP has prepared an IWMDL for this waste stream, including an Attachment 9 and supporting AK Source Documents and AK Source Document Summaries in accordance with the requirements in CCP-TP-005.

Acceptable Knowledge Assessment
AKA38 was reviewed for the targeted waste stream SR-KAC-PuOx waste stream. This AKA covered a total of 174 containers that were generated between 3/2018 and 11/2020. The AKA contents include a description of the waste stream and current waste management processes and procedures relevant to the down blend operations. The auditors also examined comments from the internal CCP and generator site review.

Chemical Compatibility Evaluation
A CBFO-approved CCE14 was reviewed that addressed the contents of waste stream SR-KAC-PuOx. All aspects of the CCE process were examined, including consolidated material inputs, technical evaluations, and attachments 1, 2, and 3. This CCE was

simplified by the limited chemical/material contents of the waste stream. The audit team also reviewed and compiled as objective evidence DRRs from internal and CBFO reviews and the CBFO approval letter.

Basis of Knowledge (Non-WAP-related)
The audit team reviewed documentation for BoK42, which was approved by the CBFO. Waste stream SR-KAC-PuOx is exempt from the BoK process, as it has confirmed the absence of oxidizers based upon a review of the container contents as described in the AKSR, Rev.1.

AK Briefings
When an AKSR is issued or revised, a presentation is prepared and provided to requisite CCP waste characterization staff and appropriate generator site personnel. Since the AKSR reviewed has not been revised recently, no AK Briefings have been prepared.

The AK audit team identified one concern. As noted above, the IWMDL developed for this waste stream and examined by the AK auditors was not compliant with some of the requirements of the CCP procedure for development of an IWMDL as documented in CCP-TP-005, Rev. 32. A CAR was issued (see CAR 22-004 in section 6.1.2).

The audit team reviewed training records for eight AKEs and three SPMs who currently participate in waste characterization activities for SRS-CCP. 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 was reviewed. No external assessments were performed at SRS in the past 12 months; however, one QA Audit, I21-02 NWP Quality Assurance Audit, was performed (1/12/21) to evaluate the adequacy and effective implementation of the CCP QA Program throughout the complex. While this audit did not specifically cover AK, it shows that the SRS-CCP is continuously monitored for quality improvements.

With the exception of the one non-WAP-affecting concern identified, the procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for AK are adequately established. The information provided demonstrated that the AK process is satisfactorily implemented and effective in achieving the desired results. No WAP-affecting concerns in the area of AK 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 #8 Unit in the K-Area and the RTR #2 Unit in the 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. 31, *CCP Conduct of Operations*
- CCP-QP-002, Rev. 47, *CCP Training and Qualification Plan*
- CCP-QP-043, Rev. 5, *CCP Operations Level Training and Qualification*
- CCP-TP-028, Rev. 12, *CCP Radiographic Training Container Construction*
- CCP-TP-053, Rev. 19, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*
- CCP-TP-021, Rev. 0, *CCP Real-Time Radiography #8 Operating Procedure*
- CCP-TP-079, Rev. 2, *CCP Real-Time Radiography #2 Operating Procedure*

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

E-Area

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

- SR-RTR2-21-0001

The BDR was verified to be complete and accurate, and was compliant 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 AKSR CCP-AK-SRS-7, Rev. 9.

The audit team observed RTR field operations for RTR Unit #2 in the E-Area, located on TRU-PAD 4 in Building 660-4E. The audit team interviewed the RTR operators, reviewed one CCP operator aid, two 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 #2 operational logbook CCP-CH-SRS-NDE-RTR2-01, for year 2021, 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. 2, *CCP Real-Time Radiography #2 Operating Procedure*. The audit team observed the image (lines/pair) test from BDR SR-RTR2-21-0002 and the RTR characterization scan on container 773A170005 from the CH S5000 debris waste stream using SR-W027-

773A-HET from the AKSR, CCP-AK-SRS-7, Rev 9. 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.

K-Area

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

- SR-RTR8-21-0001
- SR-RTR8-21-0003
- SR-RTR8-21-0004
- SR-RTR8-21-0006
- SR-RTR8-21-0007
- SR-RTR8-21-0009
- SR-RTR8-21-0013
- SR-RTR8-21-0015
- SR-RTR8-21-0018
- SR-RTR8-21-0019
- SR-RTR8-21-0021

The BDRs were verified to be complete and accurate, and found to be compliant with 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 AKSR CCP-AK-SRS-23, Rev. 1.

The audit team observed RTR field operations for RTR Unit #8 in the 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 logbook CCP-CH-SRS-NDE-RTR8-02, for year 2021, and verified logbook entries were logged correctly and reviewed by the VPM, as required. The audit team observed the startup of the unit utilizing procedure CCP-TP-021, Rev. 0, *CCP Real-Time Radiography #8 Operating Procedure*, as well as the image (lines/pair) test from BDR SR-RTR8-21-0036 and the RTR characterization scan on container KDB2100601 from the CH S5000 debris waste stream using AKSR 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 verified that the 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 four RTR operators, including the two qualified RTR SMEs. RTR training and qualification records reviewed included operator/independent technical reviewer (ITR) qualification cards; American Society for Nondestructive Testing (ASNT) Recommended Practice Number SNT-TC-1A, 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- 43, Attachment 2); annual eye exams; and waste stream training for the applicable AKSRs.

The audit team identified two non-WAP-affecting concerns in the area of RTR. The first concern was found during the review of two operator aids and one standing order. Operator Aid #OA0173, Rev. 1, was providing technical direction, when it must not, resulting in a CAQ. Upon discovery of the condition, the operator aid was cancelled and the operators were given a briefing on the contents of the operator aid. The audit team verified the cancellation of the operator aid, and reviewed training documentation to ensure the operators were trained on the contents of the operator aid. As a result of the cancellation and training provided, the CAQ was corrected during the audit (see CDA 2 in section 6.2.2).

The second concern related to the review of training container scans and corresponding training container inventory sheets for RTR operator training container exams. The audit team identified that the training container contents are not documented accurately on the training container inventory sheet. The inventory sheet reflected "empty" containers on the inventory sheet; however, the RTR operator accurately identified liquid amounts within these containers. The inventory sheet was not corrected to reflect the liquid amount identified by the operator, as required per CCP-TP-028 when the discrepancy in the container inventory was identified. There was no mention of the discrepancies on the grading form when the training containers were evaluated (see CAR 22-006 in section 6.1.2).

With the exception of the two non-WAP-affecting concerns identified, the evaluated RTR activities provided evidence that the applicable requirements for RTR characterization of CH S5000 debris waste in SRS E- and K-Areas 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 Examination have been performed by SRS-CCP in the E- and K-Areas. 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 objective evidence is discussed; the objective evidence 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

E-Area Recertification and Calibration Expansion to include Standard Waste Boxes (SWBs)

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 objective evidence, interviews with cognizant personnel, and onsite observations of waste characterization NDA activities.

The CBFO previously audited the NDA activities in the E-Area using the Mobile ISOCS Large Container Counter (MILCC6) during Audit A-21-08. At that time, the CBFO's approval was limited to the use of the MILCC6 to characterize waste contained in 55-gallon drums. Though not specified in the audit scope, the audit team became aware that SRS-CCP had issued a new calibration document for the MILCC6 (*Calibration Confirmation Report Addendum for the Mobile ISOCS Large Container Counter 6 (MILCC6) at Savannah River Site*, document #CI-MILCC6-NDA-1001-ADD Rev. 0, October 28, 2021) to expand the certified capabilities of the MILCC6 to include Standard Waste Boxes (SWBs). The audit team became aware of this change on December 8, day three of the audit, and was provided a copy of the document on December 9. The audit team conducted these interviews with responsible personnel and reviewed the following implementing procedures relative to the MILCC6 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. 7, *CCP NDA Performance Demonstration Program*
- CCP-TP-076, Rev. 6, *CCP Operating the Mobile ISOCS Large Container Counter Using NDA 2000*
- CCP-TP-077, Rev. 4, *CCP Calibrating the Mobile ISOCS Large Container Counter Using NDA 2000*

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

The audit team evaluated the MILCC Unit #6. The MILCC6 is currently in building 660-4E (Pad 4) in the 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 quality control 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 Performance Demonstration Program (PDP) for Drum Cycle 28A with data submitted on June 23, 2021, and Box Cycle B21A with data submitted on November 29, 2021 (NDA PDP Registration # SR06/SRG4)
- A review of all BDRs generated through project level (4 BDRs) in order 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 trainers (OJTs) and NDA EAs
- Continued system protection, tracking, operability, and condition of the MILCC6 since CBFO Audit A-21-08
- Data quality and use of operational logbooks and the six required procedural assay forms, including verification of the current software versions in use as listed in the CCP Software Information List (SIL) (SCO1269, SCO12770, SCO12771, and SCO12778)

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 activities performed using the MILCC6 unit on 55-gallon waste containers 773A170012 and 773A180002. 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 effectively implemented.

MILCC6

The MILCC6 system consists 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 and SWBs from two calibrated positions known as NEAR and FAR positions. 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.

SRS-CCP successfully participated in PDP cycle 28A. The sample test matrices were combustibles and metals. The SRS-CCP MILCC6 has assayed approximately 35 containers through project level review as of the audit cutoff. These assays resulted in the generation of four BDRs. All four BDRs were derived from the CH SCG S5000 debris waste stream and were reviewed to verify implementation and compliance with the requirements for documenting MILCC6 activities, as specified in CCP-TP-076. These BDRs were:

- SR-MILCC6-0030
- SR-MILCC6-0033
- SR-MILCC6-0037
- SR-MILCC6-0039

An NCR (NCR-SRS-0603-20 for container HBL140018) was written because the ITR's signature on the radioassay data sheet was dated incorrectly. The radioassay data sheet was sent back to the ITR for rework (correction) and the BDR was reviewed again.

SRS-CCP performed three calibration verifications, documented in reports dated May 12, 2021, June 7, 2021, and December 7, 2021.

The calibration verification report dated May 12, 2021, documents the condition first observed by CCP operators on April 27, 2021, where the Gamma Instrument Check measurement resulted in an "Ac" (action) flag for the 964 kiloelectronvolt (keV) Full Width at Half Maximum (FWHM) reported by detector #2. CCP examination of the system showed no external condition causing the flag. The system was removed from service and NCR-SRS-0126-21 was initiated. CCP expert analyst (EA) examination of the data showed a slight increase in the measured mean values of the 121.8 keV FWHM and 964 keV FWHM from detector #2 since establishing the parameter boundaries following the calibration confirmation. Since the initial boundaries were established with a very limited dataset immediately following the calibration confirmation, further adjustment of the mean and corresponding boundary limits was expected by CCP. The boundaries for 121.8 keV FWHM for detector #1 and 964 keV FWHM for detector #2 were to be reset, prior to performing a calibration verification.

On April 29, 2021, the SRS E-Area facility initiated a power outage at the MILCC6 due to construction activities elsewhere in the area, and the system was placed on portable electrical generator power.

On May 1, 2021, the system's main power source was scheduled to be restored. When the CCP operator arrived at the MILCC6, the operator discovered that the temperature

of detector #1 (S/N 13337) had increased from the normal operating temperature -185° C to -76.3° C. Following discussion and troubleshooting of the detector, CCP decided to replace detector #1 with the spare detector S/N B20098. On May 6, detector S/N B20098 was installed and cooling was initiated.

Following the installation of detector S/N B20098, CCP performed a new energy calibration and peak shape calibration on May 10, 2021. Because CCP expected slight variances in peak resolution with a new detector, CCP performed a set of 20 Gamma Instrument Check measurements in order to re-establish measurement control boundaries for peak resolution quality control (QC) parameters. The following MILCC6 QC parameters were updated:

- 121.8 keV FWHM detector #1
- 121.8 keV FWHM detector #2
- 964 keV FHWM detector #2

CCP established new boundary limits for QC parameters: 121.8 keV FWHM detector #1, 121.8 keV FWHM detector #2, and 964 keV FHWM detector #2 using +/- 25% of the mean values based on 20 measurements completed after the detector replacement. The resulting values are summarized in the data section of the calibration verification report. CCP noted that the recalculated boundaries for 964 keV FWHM detector #1 and 964 keV decay corrected activity QC parameters did not change appreciably, so a limit change was not warranted.

On May 11, 2021, CCP performed calibration verification measurements using Eu-152/Am-241 line sources loaded in a homasote matrix drum to verify the system's gamma modality.

The calibration verification report dated June 7, 2021, documents the condition first observed by CCP operators on May 27, 2021, when a Gamma Instrument Check measurement resulted in an "Ac" (action) flag for the 964 keV Decay Corrected Activity (DCA). CCP examination of the system showed no external condition causing the flag. The system was removed from service, tagged, and NCR-SRS-0127-21 was initiated. Detector #1 (S/N B20098) was installed on May 6, 2021 (see calibration verification discussion above) and a successful calibration verification was completed on May 11, 2021. Further examination of 964 keV DCA data indicated to CCP that a larger body of long-term data is needed to establish a more representative set of QC limits for this QC measurement check parameter. Therefore, CCP combined all data collected from May 10, through June 2, 2021, in order to establish a more statistically representative set of long-term QC limits for the 964 keV DCA.

The resulting 964 keV DCA new calculated mean value and new calculated statistical limits are summarized in the data section of the calibration verification.

On June 3, 2021, CCP performed calibration verification measurements. The calibration of the system's gamma modality was verified using Eu-152/Am-241 line sources loaded in a homasote matrix drum.

The calibration verification report dated December 7, 2021, documents the condition first observed by CCP operators on December 6, 2021, when a Gamma Instrument Check measurement resulted in an "Ac" (action) flag for the 964 keV DCA. CCP examination of the system showed no external condition causing the flag. The system was removed from service and NCR-SRS-0128-21 was initiated.

Further examination of additional collected 964 keV DCA data indicated a corrupted NDA 2000 MidFile and LYNX signal processing unit problem whereby a live time of 300 seconds was inadvertently utilized for detector # 2 instead of the normally prescribed live count time of 1,800 seconds. The last successful daily QC measurement occurred on December 2, 2021, at 12:11 PM. No process items were assayed on the MILCC6 system during the time frame from last successful Daily QC standard measurement until the unit was taken out of service for this Daily QC standard 964 keV (DCA) QC "Ac" flag failure.

To correct this problem, CCP had the MILCC6 baseline MidFile rebuilt to its original configuration and re-installed in concert with the LYNX signal processing unit on the MILCC6 Genie2K / NDA2000 operating system so that both MILCC6 detectors # 1 and # 2 are counting for the correct live count times of 1,800 seconds. CCP completed the installation of this revised MidFile on the MILCC6 Genie2K / NDA2000 operating system on December 7, 2021.

The calibration of the system's gamma modality was then verified using Eu-152/Am-241 line sources loaded in a homasote matrix drum.

The review of these three calibration verification documents and interviews with the author and cognizant operator/ITR demonstrated that 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 following calibration documents were requested and provided to the audit team for evaluation:

- MILCC6-NDA-1000, Rev. 0, 1/27/2020, *Savannah River Site MILCC6 ISOCS Calibration Report*
- 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-TMU-1001, Rev. 0, 3/5/2020, *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 in accordance with upper-tier requirements and CCP-TP-077.

The audit team examined training records for NDA personnel and confirmed they were appropriately trained and qualified as required, and the equipment software versions installed and used to perform NDA operations were appropriately identified, documented in logbook # CCP-CH-SRS-NDA-MILCC6-02 (2021), and consistent with the versions listed in the CCP-QP-022, Rev. 19, *CCP Software Quality Assurance Plan.*

The procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for NDA characterization of CH SCG S5000 debris wastes using the MILCC6 are adequately established for compliance with upper-tier requirements. The processes for characterizing CH SCG S5000 debris wastes are satisfactorily implemented and effective in achieving the desired results.

K-Area Certification

The audit team assessed the adequacy, implementation, and effectiveness of the NDA systems used by CCP at SRS to characterize waste from SCG S5000 through review of objective evidence, interviews with cognizant personnel, and onsite observation of waste characterization activities. The CBFO has not audited the NDA assay activities previously in the K-Area at facility 163-70K (SRS-KAC-CCP Pad). SRS-CCP uses two HENCs, designated HENC4 and HENC5, to characterize waste for shipment to the 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. 7, *CCP NDA Performance Demonstration Program*
- CCP-TP-204, Rev. 0, *CCP Calibrating the SRS HENC 4 & 5 using NDA 2000*
- CCP-TP-205, Rev. 0, *CCP Operating the SRS HENC 4 & 5 using NDA 2000*

The results of the review confirmed that the procedures listed above adequately address WIPP WAC and CBFO QAPD requirements.

The two HENC units each have of a single broad-energy Germanium (BEGe) detector for the detection and analysis of gamma-emitting radionuclides, and an array of 113 Helium-3 tubes arranged in a 4π geometry in order 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 (HDPE) 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 criticality control overpacks (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 Standards 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 SRS with assistance from Los Alamos National Laboratory (LANL) specifically for assaying waste of the 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 NIST, National Bureau of Standards (NBS), and American Society for Testing and Materials (ASTM) 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, SRS has developed "working standards" that are developed from the actual material that will be sent to the WIPP. These working standards allow the HENC units to account for matrix effects from within the waste.

SRS has parted 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. The audit team specifically discussed family 4 that is identified as a pre-optimized fuel grade material and family 2c that is identified as a weapons grade material with slightly enhanced fluorine.

Based on a review of the current revisions of SRS-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 and use of operational logbooks and six required procedural assay forms, including verification of the current software versions in use or all systems as listed in the SIL (SCO1269, SCO.12770, SCO12771, and SCO12778)

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 KDB2100602 and KDB2100690 activities on HENC4 and KDB21000710 activities on the HENC5.

The HENC4 and HENC5 units successfully performed measurements on August 26, 2021, in PDP cycle CO1A and submitted those measurement results for scoring. The audit team reviewed the data collected as part of the PDP program and reviewed the approval status notification issued by the CBFO on September 15, 2021 (21-1006 Memo) documenting that both HENC units had passed the PDP test criteria.

The HENC4 unit performed assays resulting in the generation of 17 BDRs that were presented as objective evidence to the audit team. Those BDRs are:

- SR-HENC4-0002
- SR-HENC4-0003
- SR-HENC4-0004
- SR-HENC4-0005
- SR-HENC4-0006
- SR-HENC4-0007
- SR-HENC4-0008
- SR-HENC4-0009
- SR-HENC4-0010
- SR-HENC4-0011
- SR-HENC4-0012
- SR-HENC4-0013
- SR-HENC4-0014
- SR-HENC4-0015
- SR-HENC4-0016
- SR-HENC4-0017
- SR-HENC4-0018

No NCRs were written against any of the HENC4 assay results for BDRs or containers.

The HENC5 unit performed assays resulting in the generation of 20 BDRs that were presented as objective evidence to the audit team. Those BDRs are:

- SR-HENC5-0002
- SR-HENC5-0003
- SR-HENC5-0004
- SR-HENC5-0005
- SR-HENC5-0006
- SR-HENC5-0007
- SR-HENC5-0008
- SR-HENC5-0009
- SR-HENC5-0010
- SR-HENC5-0011
- SR-HENC5-0012
- SR-HENC5-0013
- SR-HENC5-0014
- SR-HENC5-0015
- SR-HENC5-0016
- SR-HENC5-0017
- SR-HENC5-0018
- SR-HENC5-0019
- SR-HENC5-0020
- SR-HENC5-0021

Two NCRs were written on the HENC5 system. The first was NCR-SRS-0808-21 for container KDB1901360, which was written because the operator erroneously entered the location of the container as "E Area" when the container was actually located in "K Area." The Radioassay data sheet was returned for rework (correction) by the operator and reviewed again. The second NCR was written on container KDB1901378 because the container weight was incorrectly recorded on the assay documentation and did not match the RTR data sheet. The original RTR data sheet was revised, but that revision was not provided to the NDA operators. The container was reworked and the information was corrected.

The audit team reviewed:

- 6-4-21 *HENC4 Calibration Confirmation and Validation Plan at SRS, Rev. 0*; 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*

No calibration verifications have been performed on the two HENC units.

The audit team determined that the procedures applied to the 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.

Through review of training records, the audit team confirmed that NDA personnel were appropriately trained and qualified and that software versions installed and being used to perform NDA were appropriately identified and consistent with the versions on the CCP SIL. A review of associated operational logbooks confirmed that they are appropriately completed and reviewed as procedurally required.

The procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for NDA characterization of CH SCG S5000 debris wastes are adequately established for compliance with upper-tier requirements. The processes for characterizing CH SCG S5000 debris waste are satisfactorily implemented and effective. No non-WAP-affecting concerns in the area of NDA 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. 12, *CCP Standardized Container Management.* Results of the review indicate that the procedure adequately addresses upper-tier requirements.

The audit team entered building 163-70K to verify the CM procedure walk-down. The mock walk-down utilized container KDB2100779 completed 11-23-2021. The container was verified to be in the AK tracking system. The container filter inspection was read to the audit team and verified to be a Nuc-Fil 19DS filter with serial number KO-380. The team verified the filter was snug against the drum. The team verified the use of hold tags and the verification of a radiological label.

A scale calibration check was completed on the Mettler Toledo scale, identification tag of KX-222 (S/N: 0009202-OCE), with a calibration due date of 5-23-2022.

Records stored at the site were properly maintained for integrity in 1.5-hour fire-rated Fire-King file cabinets. 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:

- 201202_HBL170027
- 201202_HBL180005
- 201205_V35C011906
- 201207_V35C022004

- 201207_V35EWC1801
- 201208_V35C011907
- 201208_V35C012006
- 201208_V35C021901
- 201209_HBL180002

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 container management personnel and determined the operators were qualified and capable to perform container management operations.

One concern was identified in regards to the container traveler record requirements. Designated QA/Nonpermanent records generated at the site do not meet an EPI Moratorium under the disposition authorities under the Epidemiological Moratorium of March 2008 (see CAR 22-005, section 6.1.2). This moratorium is a statutory requirement identified in WP 13-1, NWP *Quality Assurance Program Description*, Rev. 40, section 1.5. The traveler must be maintained as a permanent record until the moratorium is removed.

With the exception of the one non-WAP-affecting concern identified, the procedures reviewed, field operations observed, and documentation assembled provided evidence that the applicable requirements for container management of CH SCG S5000 debris wastes are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective in achieving the desired results.

5.6.3 Flammable Gas Analysis

The audit team conducted interviews with responsible personnel and reviewed the following implementing procedure relative to the FGA process to determine the degree to which the procedure addresses upper-tier requirements: DOE/WIPP-06-3345, Rev. 10, *Waste Isolation Pilot Plant Flammable Gas Analysis*. Results of the review indicate that the procedure adequately addresses upper-tier requirements.

The audit team verified field activities at the PAD 4 facilities. Verification of compliance was demonstrated through review of FGA BDRs, logbook FGA Unit 14 - CCP-CH-SRS-FGA-UNIT14-02, training documents, and interviews conducted with FGA operations personnel.

The audit team interviewed an SRS-CCP operator to verify compliance with the implementing procedures applicable to FGA.

The audit team examined the following CH FGA BDRs to verify implementation and compliance with the requirements for documenting FGA activities, as specified in DOE/WIPP-06-3345:

- SR20FG14032_ICAL (Initial Calibration Report)
- SR20FG14004_MDL (Minimum Detection Limit Level Report)
- SR20FG14029
- SR20FG14030
- SR20FG14033
- SR20FG14035

All reports were complete, reviewed by the VPM as required, and maintained by CCP Records. There was one NCR associated with the FGA BDRs: NCR-SRS-0800-21-R1, which was properly prepared, satisfactorily completed, and maintained by CCP Records.

The audit team examined training and qualification documentation dated December 8, 2021, 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 and analytical operations records utilizing an Agilent Technologies Gas Chromatograph 7890B series Gas Chromatograph (GC) (S/N: U519303035; GC S/N: MXL91742T6) for CH waste containers as reported in the BDRs, immediately followed by sample analysis. The team also verified the use of the procedure to determine the sampling scenario, determination of the drum age criteria, 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 samplings via the side port of filters (container numbers 773A130005, 773A780002, 773A140004) were performed and verified by the audit team in accordance with the procedure. No discrepancies were identified for either sampling or analysis of CH containers.

The audit team verified that an independent technical review was performed following analytical BDR completion, that any discrepancies were noted and returned to the analyst for correction, and that 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. 1/2023) identified in the field, Initial Calibration Standards (EB0075449, exp. 1/2023), and for Continuing Calibration Standards (CC45375, exp. 1/2023). All standards were within their expiration dates and contained the required number of volatile compounds, including hydrogen and methane

(EB0046840, exp. 10/2023). Carrier gases such as Nitrogen and Helium were verified as well.

The procedures reviewed and objective evidence assembled provided evidence that the applicable requirements for FGA characterization of CH SCG S5000 debris wastes are adequately established for compliance with upper-tier requirements. The processes for characterizing CH SCG S5000 debris waste are satisfactorily implemented and effective. No non-WAP-affecting concerns in the area of FGA were identified.

5.6.4 Dose-to-Curie

The audit team conducted interviews with responsible personnel and verified no waste characterization field activities for Dose-to-Curie have been performed by SRS-CCP in E- and K-Areas. Dose-to-Curie is not applicable to the scope of this audit.

6.0 CARs, CDAs, OBSERVATIONS, AND RECOMMENDATIONS

6.1 Corrective Action Reports

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

> Condition Adverse to Quality (CAQ) – An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies.
>
> Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, regulatory compliance demonstration, or the effective implementation of the QA program.

6.1.1 WAP-Affecting Corrective Action Reports

No WAP-affecting CARs were identified during the audit.

6.1.2 Non-WAP-Affecting Corrective Action Reports

Four non-WAP-affecting CARs were identified during the audit.

CAR 22-003

Condition Adverse to Quality:
The last management assessment performed by NWP/CCP occurred in August 2020. Based on American Society of Mechanical Engineers NQA 3-1989, paragraph 2.4, and CBFO QAPD requirements for management assessments, they are to be reported at least annually. The CCP did not complete a management assessment by August 2021, and none had been completed as of the time of this audit.

CCP has not identified in its procedures the applicable management and organizational levels to which the requirement to perform management assessments apply as evident with a single consolidated assessment scheduled within CCP this past year. The CCP organizational chart shows a large supervisory chain spread over multiple generator sites. In accordance with NQA-1, Section 1, first paragraph, which states "*the organizational structure, functional responsibilities, levels of authority, and lines of communication for activities affecting quality shall be documented*" and NQA-1, Section 2, last paragraph, which states "*Management of those organizations implementing the quality assurance program, or portions thereof, shall regularly assess the adequacy of that part of the program for which they are responsible and shall assure its effective implementation.*" CCP will consider the organizational structure, site activities, and other mission priorities that facilitate waste characterization, transport and delivery when planning, performing and documenting management assessments.

Requirement:
WP 13-1, Rev. 40, *NWP Quality Assurance Program Description,* Section 3.1, Management Assessment, states: "Management assessments shall be conducted regularly. Overall management assessment results shall be reported to the President & Project Manager at least annually."

DOE/CBFO-94-1012, Rev. 13, *Quality Assurance Program Document*, Section 3.1, Management Assessment, states: "E. Management assessments of the QA program shall be conducted regularly and reported at least annually to an identified senior management level with sufficient authority to effect corrective measures, as necessary."

CAR 22-004

Condition Adverse to Quality:
Attachment 3, Acceptable Knowledge Source Document Summary, from CCP-TP-005, *CCP Acceptable Knowledge Documentation*, must include a procedure verification summary, a procedure verification date, and name of the subject matter expert (SME) contacted for the procedure verification. For documents listed on Attachment 9, Interface Waste Management Documents List, the associated Attachment 3 forms contained the following issues:

1) A verification summary was not included on the Att. 3, AK Source Document Summary, for the seven AK Source Documents listed on the Att. 9, Interface Waste Management Documents List (i.e., P5066, D5044, P5060, P5059, P5057, P5058, P5063). Some Att. 3's included a statement that the verification was performed, but did not include a summary of the verification (i.e., P5066, D5044, P5058, P5063). Other Att. 3's did not include a verification statement or a verification summary (i.e., P5060, P5059, P5057).

2) Points of Contact (POCs)/SMEs were not identified for verification on the Att. 3, AK Source Document Summary, for three AK Source Documents listed on the Att. 9, Interface Waste Management Documents List (i.e., P5060, P5059, P5057).

3) A verification date was not identified on the Att. 3, AK Source Document Summary, for three AK Source Documents listed on the Att. 9, Interface Waste Management Documents List (i.e., P5060, P5059, P5057). On Att. 9, "Pending" is listed as the verification date.

4) The Att. 3 verification dates are different from the Att. 9 verification dates on the following:

   - P5066, D5044: Att. 3 verification dates: 8/4/21, Att. 9 verification dates: 8/10/21
   - P5058: Att. 3 verification date: 8/3/21, Att. 9 verification date: 8/4/21

5) The AK Source Document dates/revisions are different from the dates/revisions listed on the Att. 3 and Att. 9 for five documents listed on the Att. 9 (i.e., P5058, P5066, D5044, P5060, P5063).

Requirement:
CCP-TP-005, Rev. 32, *CCP Acceptable Knowledge Documentation*, section 4.2.10[G], states: "Summarize the verification (including the identification of the POCs/SMEs and verification date) on the Attachment 3, Acceptable Knowledge Source Document Summary form."

CAR 22-005

Condition Adverse to Quality:
CCP-TP-068, Rev. 12, *CCP Standardized Container Management*, Attachment 1, Container Traveler, is not being maintained as a quality assurance/nonpermanent record as specified in section 5.0, Records (i.e., the proper storage area for the Attachment 1, Container Traveler, [stickered version of Attachment 1] should be in the WIPP Records Archive and not on the container located in the underground repository due to environmental conditions preventing retrieval of these records).

According to the Records Inventory and Disposition Schedule, these records are identified as Epidemiological Records and do not meet the EPI Moratorium under disposition authorities under the Epidemiological Moratorium of March 2008, Environmental Records Schedule, Section 2.d(1) Regulatory Compliance, Waste Generator Shipping/Transporting Waste Files, Hazardous Substance Transfer Files.

Requirement:
WP 13-1, Rev. 40, *NWP Quality Assurance Program Description*, section 1.5, Records, states: "Records shall be specified, prepared, reviewed, approved, controlled, and

maintained to accurately reflect completed work and facility conditions and to comply with statutory or contractual requirements."

CAR 22-006

Condition Adverse to Quality:
Training container contents are not documented accurately on the training container inventory sheet. Liquid amount discrepancies are being identified between the inventory sheet and what is observed within the training container by the real-time radiography operator. Corrections are not being made to the inventory sheet, as required, when discrepancies are identified. During the review of Training Container videos NDE-Training-134 and NDE-Training-137, associated Central Characterization Program (CCP) nondestructive examination (NDE) Training Container Inventory Sheets, and videos, the following issues were identified:

- NDE-Training-134: item # 9 on inventory 250ml plastic bottle with lid (Empty), identified in video as 250ml bottle with 5ml liquid.
- NDE-Training-137: item # 10 (1) Empty Fantastic bottle, identified in video as 1 liter spray bottle with 10ml liquid.

Requirement:
CCP-TP-028, Rev. 12, *CCP Radiographic Training Container Construction*, section 4.3.1, states: "If an error on a Training Container Inventory Sheet is suspected, perform the following:

[A] Remove TID/lock on training container.
[B] Remove lid from training container using applicable host site work control process.
[C] Visually confirm questionable item(s).
[D] Correct Training Container Inventory Sheet as appropriate AND include in the comment section a description of why the correction was made. Resign, date Attachment 1, and submit corrected Attachment to CCP Training."

CCP-QP-043, Rev. 5, *CCP Operations Level Training and Qualification*, Attachment 1, section 13.0, states: "IF the SME determined the operator successfully identified the WMPs and estimated the WMP weights, THEN perform the following:

- 13.1 Review the Training Container audio/video.
- 13.2 Document discrepancies, as defined above, in Block 7 of Attachment 2, if applicable."

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. Audit team members, the Audit Team Leader (ATL), and the CBFO QA Management Representative evaluate the CAQs to determine if they are significant. Once a determination is made that the CAQ

is not significant, the audit team member, in conjunction with the ATL and the CBFO QA Management Representative, determines if the CAQ is a minor and isolated case requiring only remedial action and therefore can be corrected during the audit. Upon determination that the CAQ is minor and isolated, the audit team member, in conjunction with the ATL and the CBFO QA Management Representative, evaluates/verifies any objective evidence/actions submitted or taken by the audited organization and determines if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the CBFO QA Management Representative categorizes the condition as corrected during audit (CDA) according to the definition below.

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

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

Two non-WAP-affecting CAQs were identified and corrected during the audit.

CDA 1

Condition Adverse to Quality:
Commitment tracking or Issue Notices have not been initiated for the following conditions requiring resolution, as reported in Management Assessment MA-CCP-0008-20 conducted on July 21, 2020, for CCP Interface at SRS, AREA E:

1. Configuration Management Engineer (CME) to complete his portion of CCP-P0-044, Attachment 1 prior to startup.
2. CCP Operations Manager to provide direction to all VPMs that addresses name and initials requirement for logbooks to ensure consistency at all sites performing characterization.
3. CCP NDE Cognizant Engineer develop a plan to ensure identifying Waste Material Parameters (WMP) and Prohibited Items (PI) proficiency is maintained by operators that do not routinely see waste stream containing debris items.
4. NWP Quality Assurance Engineer perform an independent assessment (audit/surveillance) to determine if additional training for documenting and resolving NCR conditions is necessary.

5. CCP FGA Cognizant Engineer evaluate the need to provide additional DOE/WIPP 06-3345 training and/or procedure revision for determining drum age criteria (DAC).

Requirement:
CCP-QP-018, Rev. 14, *CCP Management Assessment*, Section 4.12, states: "IF Conditions Adverse to Quality (CAQs), CDA(s), Other Conditions Requiring Resolution (OCRR), Observations or Recommendations are identified during the Management Assessment, THEN initiate Issue Notice(s) for each condition in accordance with WP 15-GM1002."

CDA 2

Condition Adverse to Quality:
Operator aid #OA0173 Rev 0 dated 9/14/21 states: "With settings initially at 220kv and 5 mA, increase by 10 kV every 1 minute until 450 kV is reached. When kV setting reaches 450 kV and mA at 5 mA, increase by 1 mA every 1 minute until 10 mA is reached. After a long weekend, or down-time exceeding 2 days, increase the time interval from 1 minute to 2 minutes for each increase of mv and mA."

This operator aid is providing technical direction on how to proceed with a manual warm up.

Requirement:
CCP-PO-005, Rev. 31, *CCP Conduct of Operations*, Section 19, states:
"Operator Aids shall be viewed as a convenience to the operator, not administrative/technical requirements and/or direction. Operator Aids may supplement approved procedures, but shall not be used in lieu of approved procedures."

6.3 Observations

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

Observation – A condition that, if not controlled, could result in a CAQ.
Once a determination is made, the audit team member, in conjunction with the ATL, categorizes the condition appropriately.

6.3.1 WAP-Affecting Observations

No WAP-affecting Observations were identified during the audit.

6.3.2 Non-WAP-Affecting Observations

No non-WAP-affecting Observations were identified during the audit.

6.4 Recommendations

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

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

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

No Recommendations were identified during the audit.

7.0 LIST OF ATTACHMENTS

Attachment 1: Meeting Attendees and Personnel Contacted During Audit A-22-02
Attachment 2: Personnel Contacted During the Audit by Subject Area
Attachment 3 Summary Table of Audit Results
Attachment 4: WAP-Related Objective Evidence Reviewed During the Audit
Attachment 5: Table of Audited Procedures
Attachment 6: List of Processes and Equipment Evaluated

MEETING ATTENDEES AND PERSONNEL CONTACTED DURING AUDIT A-22-02				
NAME	**ORG/TITLE**	**PRE-AUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
Adams, James	SRS/K-Area Ops First Line Manager	X		
Ams, Bridget	Tech-Specs/CCP AKE	X	X	
Ballew, Veronica	NWP/QA Programs Manager	X	X	X
Barnes, Amanda	SRS/K-Area Deputy Facility Manager	X		
Billington, Michelle	SRS/E-Area Engineering	X		
Biswell, David	NMED/Observer	X	X	X
Brantley, Todd	SRS/E-Area Radcon Manager		X	
Brown, Douglas	DNFSB Engineer	X	X	
Bruce, Devin	NWP/CCP FGA Operator	X	X	
Bukeiwitz, Zach	Mirion/NDA Operator		X	
Carlton, Tim	Mirion/NDA Lead Operator	X	X	
Carver, Tom	CBFO Waste Certification Manager/ ONTP	X	X	X
Crapse, Herbert	DOE-SR/Nuclear Material Program Division	X	X	X
Crawford, Kerri	SRS/Solid Waste Programs Manager	X	X	X
Dhom, Dawn	SRS/Program	X		

MEETING ATTENDEES AND PERSONNEL CONTACTED DURING AUDIT A-22-02				
NAME	**ORG/TITLE**	**PRE-AUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
	Manager, Nuclear Nonproliferation Program			
Entzminger, Robert	SRS/K-Area Radcon Facility Manager	X		
Fairchild, Pete	SRS/E-Area Engineering	X		
Franks, Stephanie	TFE/CCP Training	X	X	
Gallegos, Adam	Mirion/NDA Expert Analyst	X	X	X
Gambrell, James	EM-HQ/Office of Standards and QA	X	X	X
Gentry, Katie	NWP/CCP QA	X	X	X
Gonzalez, Jorge	NWP/CCP SPM	X	X	X
Greenwood, Trey	Tech-Specs/CCP AKE		X	X
Groover, Terry-Anne	NWP/CCP Cog Engineer for NDE and FGA	X	X	X
Harvill, Joe	NWP/CCP NDA Tech. Advisor	X	X	X
Hinojos, Gabriella	TFE/CCP Records	X	X	
Hoefsner, Rene	SRS/Solid Waste Management Operations	X		
Houghton, Josh	NWP/CCP SPM	X	X	X
Iqbal, Waqas	CBFO/Cert./Oversight Coordinator/NTP		X	X

MEETING ATTENDEES AND PERSONNEL CONTACTED DURING AUDIT A-22-02				
NAME	**ORG/TITLE**	**PRE-AUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
	Certification Division			
Johnson, Carrie	Tech-Specs/CCP AKE	X	X	X
Kantrowitz, Rich	NWP/CCP Tech Services Manager	X	X	X
Kareis, Nikki	NWP/CCP RTR Operator	X	X	X
Kay, Virginia	SRS/National Nuclear Security Administration	X		
Kirkes, Creta	NWP/CCP WCO	X	X	X
Lawson, Janice	SRS/Deputy Vice President, Environmental Management Operations	X		
Lee, Ronnie	NWP/CCP Manager	X	X	
Maestas, Ricardo	NMED/Observer		X	X
Martinez, Porf	ONTP/ Science Manager	X	X	X
Maxted, Maxine	SRS/National Nuclear Security Administration	X		
McGuire, Courtney	TFE/CCP Records	X		
McLean, Megan	NMED/Observer	X	X	X
Mentrup, Steve	SRS/Solid Waste	X		X
Mooneyham, Verne	SRS/E-Area Facility Manager	X	X	

MEETING ATTENDEES AND PERSONNEL CONTACTED DURING AUDIT A-22-02				
NAME	**ORG/TITLE**	**PRE-AUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
Osborne, Rhonda	SRS/K-Area Engineering	X		X
Pace, Berry	NWP/CCP Waste Characterization Advisory Engineer	X	X	X
Poulos, Christina	Tech-Specs/CCP AKE	X	X	
Reeves, Ron	NWP/CCP Operations Manager	X	X	X
Riordan, Ryan	Tech-Specs/CCP AKE	X	X	X
Searcy, William	Mirion/NDA Operator		X	
Smith, Patrick	NWP/CCP QA	X		X
Taylor, John	Mirion/NDA Operator		X	
Teal, James	NWP/CCP RTR Lead Operator	X	X	X
Tilmon, Giovanna	TFE/CCP Records	X	X	X
Tilmon, Pat	NWP/CCP Project Manager	X	X	X
Toro, Robert	EM-HQ/Office of Standards and QA	X	X	X
Treadway, Shawn	NWP/CCP VPM	X	X	
Wade, Daniel	NWP/CCP Manager	X	X	
Walker, Connie	Tech-Specs/CCP AKE	X	X	X
Watson, Tyler	NWP/CCP RTR Operator		X	

MEETING ATTENDEES AND PERSONNEL CONTACTED DURING AUDIT A-22-02				
NAME	**ORG/TITLE**	**PRE-AUDIT MEETING**	**CONTACTED DURING AUDIT**	**POST-AUDIT MEETING**
Webb, Jessica	TFE/CCP Document Service Manager	X	X	X
Youngblood, Brandon	NWP/CCP RTR Operator		X	
Yturralde, Jewell	TFE/CCP Record Manager		X	X

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

Acceptable Knowledge	Bridget Ams Trey Greenwood Carrie Johnson Christina Poulos Ryan Riordan Connie Walker
Project Level V&V	Josh Houghton Rich Kantrowitz
Real-Time Radiography	Terry-Anne Grover Josh Houghton Rich Kantrowitz Nikki Kareis Ron Reeves James Teal Pat Tilmon Shawn Treadway Tyler Watson Brandon Youngblood
Flammable Gas Analysis	Devin Bruce
Personnel Qualification and Training	Stephanie Franks Rich Kantrowitz
Control of Nonconforming Items	Veronica Ballew Katie Gentry
Records	Giovanna Tilmon Jewell Yturralde
WIPP Waste Information System (WWIS Data Entry)	Creta Kirkes

Audit A-22-02
SUMMARY TABLE OF AUDIT RESULTS

QA / Technical Elements	Concern Classification				QA Evaluation		Technical Evaluation
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
Program Status/Program Changes/Interface	1	1			A	S	E
Acceptable Knowledge & Waste Certification	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	1				A	S	E
Flammable Gas Analysis					A	S	E
C6 General QA Elements (NCRs, Quals & Training, Records)					A	S	E
C6 General QA Elements (WWIS/WDS)					A	S	E
TOTALS	4	2	0	0	A	S	E

Definitions

E = Effective
S = Satisfactory
I = Indeterminate
M = Marginal
U = Unsatisfactory

CAR = Corrective Action Report
CDA = Corrected During Audit
NE = Not Effective

Obs – Observation
Rec = Recommendation
A = Adequate
NA = Not Adequate

WAP-Related Objective Evidence Reviewed During the Audit

The WAP-related objective evidence supporting the Audit A-22-02 will be included in the shipping box(es) submitted with this final audit report. Included in the shipping box(es) will be a "Content Map" describing the location (using color coding) and identity of all required objective evidence supporting the performance of the audit.

Audit A-22-02
TABLE OF AUDITED PROCEDURES

	Document No.	Revision Number	Document Title
1.	CCP-PO-001	23	*CCP Transuranic Waste Characterization Quality Assurance Project Plan*
2.	CCP-PO-002	31	*CCP Transuranic Waste Certification Plan*
3.	CCP-PO-004	40	*CCP/SRS Interface Document*
4.	CCP-PO-005	31	*CCP Conduct of Operations*
5.	CCP-PO-043	0 &1	*CCP Interface Document Preparation*
6.	CCP-PO-047	3	*CCP Training and Qualification Program Document*
7.	CCP-QP-002	47	*CCP Training and Qualification Plan*
8.	CCP-QP-005	28	*CCP TRU Nonconforming Item Reporting and Control*
9.	CCP-QP-008	27	*CCP Records Management*
10.	CCP-QP-022	19	*CCP Software Quality Assurance Plan*
11.	CCP-QP-028	17	*CCP Records Filing, Inventorying, Scheduling, and Dispositioning*
12.	CCP-QP-041	5	*CCP Job Needs Analysis and Design*
13.	CCP-QP-042	3	*CCP Project Level Training and Qualification*
14.	CCP-QP-043	5	*CCP Operations Level Training and Qualification*
15.	CCP-TP-001	23	*CCP Project Level Data Validation and Verification*
16.	CCP-TP-002	29	*CCP Reconciliation of DQOs and Reporting Characterization Data*
17.	CCP-TP-005	32	*CCP Acceptable Knowledge Documentation*
18.	CCP-TP-021	0	*CCP Real-Time Radiography #8 Operating Procedure*
19.	CCP-TP-028	12	*CCP Radiographic Training Container Construction*
20.	CCP-TP-030	40	*CCP CH TRU Waste Certification and WWIS/WDS Data Entry*
21.	CCP-TP-048	19	*CCP NDA System Data Reviewing, Validating, and Reporting Procedure*
22.	CCP-TP-053	19	*CCP Standard Real-Time Radiography (RTR) Inspection Procedure*
23.	CCP-TP-058	7	*CCP NDA Performance Demonstration Program*
24.	CCP-TP-068	12	*CCP Standardized Container Management*
25.	CCP-TP-076	6	*CCP Operating the Mobile ISOCS Large Container Counter Using NDA 2000*
26.	CCP-TP-077	4	*CCP Calibrating the Mobile ISOCS Large Container Counter Using NDA 2000*
27.	CCP-TP-079	2	*CCP Real-Time Radiography #2 Operating Procedure*
28.	CCP-TP-200	7	*Enhanced Acceptable Knowledge Review*
29.	CCP-TP-204	0	*CCP Calibrating the Savannah River Site High Efficiency Neutron Counters 4 & 5 (HENC4 & HENC5) Using NDA 2000*
30.	CCP-TP-205	0	*CCP Operating the Savannah River Site High Efficiency Neutron Counters 4 & 5 (HENC4 & HENC5) Using NDA 2000*
31.	DOE/WIPP-06-3345	10	*Waste Isolation Plant Flammable Gas Analysis*
32.	DOE/WIPP-16-3564	2	*Generator Site Technical Review Procedure*
33.	WP 13-1	40	Nuclear Waste Partnership LLC, Quality Assurance Program Description
34.	WP 13-QA.03	31 & 32	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

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams
LIST OF PROCESSES/EQUIPMENT		
3MILCC6 (E-Area)	Non-Destructive Assay (NDA) Equipment Mobile ISOCS Large Container Counter (MILCC)	Debris (S5000) - CH
1HC4 (K-Area)	High Efficiency Neutron Counter with Integrated Gamma Spectrometer (HENC4)	Debris (S5000) - CH
1HC5 (K-Area)	High Efficiency Neutron Counter with Integrated Gamma Spectrometer (HENC5)	Debris (S5000) - CH
1RR2A (E-Area)	Non-Destructive Examination (NDE) Equipment Real-Time Radiography (RTR2)	Debris (S5000) - CH
1RR8 (K-Area)	Non-Destructive Examination (NDE) Equipment Real-Time Radiography (RTR8)	Debris (S5000) - CH
1HG14 (E-Area)	Flammable Gas Analysis (FGA) FGA14	Debris (S5000) - CH
(K-Area)	Acceptable Knowledge (AK) Enhanced Acceptable Knowledge (EAK)	Debris (S5000) - CH
(E-Area)	Acceptable Knowledge (AK) Enhanced Acceptable Knowledge (EAK)	Debris (S5000) - CH
(E-Area)	Enhanced Acceptable Knowledge (EAK)	Solids (S3000) - CH Soils (S4000) – CH
N/A	Project Level Validation and Verification (V&V)	Debris (S5000) - CH

List of Processes and Equipment Evaluated

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams
N/A	WIPP Waste Information System/Waste Data System (WWIS/WDS)	Debris (S5000) - CH
N/A	Quality Assurance Program	Debris (S5000) - CH

Biscaino, Debra - TFE

From:	Joyce Mendoza - CTAC <Joyce.Mendoza@cbfo.doe.gov>
Sent:	Wednesday, March 09, 2022 9:44 AM
To:	Rick.Shean@state.nm.us
Cc:	joanne.lorence@em.doe.gov; Toro, Robert; EMCCMAILBOX@em.doe.gov; Bollinger, Mark - CBFO; Ed Garza; Princen, Kenneth - FedNet; Jolley, Darren - CBFO; Lopez, Joe - FEDnet; Stapleton, Micheal - FedNet; Juangenaro Montemayor; Cruickshank, Herbert (Herb) - FedNet; Walker, Andy - FedNet; Foreman, David - CBFO; Smith, DaBrisha - CBFO; Toothman, Mindy - CBFO; Bamper, Daniel - CBFO; Luckey, Morgan - CBFO; Iqbal, Waqas - CBFO; 'michael.budney@srs.gov'; Comeau, Patti (CONTR); herbert.crapse@srs.gov; Dunagan, Sean - NWP; Strong, Sharleen - NWP; Stone, Keith - NWP; Pearcy, Mark - NWP; Gonzales, Marty - NWP; Taylor, Roland - NWP; Lee, Ronnie - NWP; Reeves, Ron - NWP; Simmons, Craig - NWP; Harvill, Joe - NWP; Houghton, Joshua - NWP; Gentry, Katie - NWP; 'Pat.tilmon@truproject.com'; Kantrowitz, Rich - NWP; Carter, Judy - NWP; Ivey, Dennis- NWP; Ballew, Veronica - NWP; Saiz, Sheri - NWP; Boyea, Amy - NWP; Ellis, Jerry; Peake.Tom@epa.gov; Feltcorn, Ed - EPA; Maestas, Ricardo - State of NM; Biswell, David - NMED; 'McLean, Megan, NMENV'; 'kopp@navarro-inc.com'; 'Wayne Ledford'; Castillo, Rick - CTAC; Gomez, Shelly - CTAC; Yanez, Prissy - CTAC; Harvill, Danette - CTAC; White, Gayla - CTAC; Chavez, Rick - RES; Haschets, John - RES; Standiford, Jeremy - RES; Feeley, Brittany - RES; Urquidez, Ken - RES; Urquidez, Ashley - RES; DL WDS DA; Site Documents - DOE; Sifuentes, Soledad - Sandia; DOE M&RC
Subject:	Transmittal of the Final Report for CBFO Audit A-22-02 of the Savannah River Site/Central Characterization Program
Attachments:	Letter 22-0138.pdf; Enclosure- Revised A-22-02.pdf

Please contact Micheal Stapleton, Quality Assurance Specialist, CBFO Quality Assurance Division, at (814) 421-3322 should you have any questions concerning this audit report.

Thank you,

Joyce Mendoza
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NAVARRO