

United States Government

Department of Energy

memorandum

Carlsbad Field Office
Carlsbad, New Mexico 88502-2121



DATE: DEC 14 2011
REPLY TO: CBFO:OQA:CGF:MAG:11-1988:UFC 2300.00
ATTN OF:
SUBJECT: Interim Audit Report for Certification Audit A-12-02 of the SRS/CCP
TO: Johnny Harper, DOE-SR

The Carlsbad Field Office conducted Certification Audit A-12-02 of the Savannah River Site Central Characterization Project (SRS/CCP) on November 14-17, 2011. The CBFO Interim Audit Report is attached.

The audit team concluded that the SRS/CCP implementing procedures are adequate relative to the flow-down of requirements. The audit team determined that the SRS/CCP quality assurance and technical requirements are being satisfactorily implemented and are effective in all areas.

One condition adverse to quality was noted as a result of the audit. The audit team identified one Observation during the audit and offered one Recommendation to SRS/CCP management for consideration.

If you have any questions or comments concerning the attached report, please contact me at (575) 234-7548.

Courtland G. Fesmire, P.E.
Quality Assurance Engineer

Attachment

cc: w/attachment

- | | | | |
|------------------------|------|------------------------------|----|
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| J.R. Stroble, CBFO | ED | J. Kielling, NMED | ED |
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| J. Hoff, WTS | ED | P.Y. Martinez, CTAC | ED |
| M.A. Mullins, WTS | ED | M. Mager, CTAC | ED |
| T. Peake, EPA | ED | WWIS Database Administrators | ED |
| M. Eagle, EPA | ED | WIPP Operating Record | ED |
| E. Feltcorn, EPA | ED | CBFO QA File | |
| R. Joglekar, EPA | ED | CBFO M&RC | |
| S. Ghose, EPA | ED | *ED denotes electronic dis' | |



U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

INTERIM AUDIT REPORT

OF THE

SAVANNAH RIVER SITE CENTRAL CHARACTERIZATION PROJECT
TRU WASTE CHARACTERIZATION AND CERTIFICATION ACTIVITIES

AIKEN, SOUTH CAROLINA

AUDIT NUMBER A-12-02

November 14 – 17, 2011



Prepared by: Priscilla Y. Martinez
Priscilla Y. Martinez, CTAC
Audit Team Leader

Date: 12-14-11

Approved by: Courtland Fesmire
CO Randy Unger, CBFO
Quality Assurance Director

Date: 14 Dec 2011

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Recertification Audit A-12-02 was conducted to evaluate the continued adequacy, implementation, and effectiveness of Savannah River Site (SRS) transuranic (TRU) waste characterization activities performed for SRS by the Washington TRU Solutions (WTS) Central Characterization Project (CCP) relative to the requirements detailed in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), the *CBFO Quality Assurance Program Document (QAPD)*, the *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*, and the *CCP Contact-Handled Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*.

The audit team evaluated contact-handled (CH) Summary Category Groups (SCGs) S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste, in addition to other technical elements and quality assurance (QA) elements. The initial Certification Audit, A-12-04, for remote-handled (RH) SCG S5000 retrievably stored debris waste was conducted concurrently with this audit. The specific items audited are listed in section 2.1.

The audit was conducted at the SRS/CCP facilities near Aiken, SC, November 14 through 17, 2011. The audit team concluded that overall, the SRS/CCP technical and QA programs, as applicable to audited activities, were adequately established for compliance with the upper-tier requirements. The audit team verified that the SRS/CCP program for characterization and certification activities related to CH SCGs S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste continue to be adequate, satisfactorily implemented, and effective. The audit team determined that the SRS/CCP QA and technical requirements are being satisfactorily implemented and are effective in all areas.

The audit team identified one condition adverse to quality, resulting in the issuance of CBFO Corrective Action Report (CAR) 12-002. The CAR combines three concerns that were deemed to be inattention to detail, identified during the evaluation of QA records. The concerns are discussed in detail in section 6.1. One Observation was identified during the audit and a Recommendation was offered for management consideration. The Observation and Recommendation are described in sections 6.3 and 6.4.

2.0 SCOPE AND PURPOSE

2.1 Scope

The audit team evaluated the continued adequacy, implementation, and effectiveness of the SRS/CCP TRU waste characterization and certification activities for CH SCGs S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste.

The following elements were evaluated during the audit:

Quality Assurance

Personnel Qualification and Training
Nonconformance Reporting
Records

Technical

Data Validation and Verification (V&V) (Project and Generation Level)
Solids and Soils/Gravel Sampling and Analysis
Acceptable Knowledge (AK)
Headspace Gas (HSG) Sampling and Analysis
Real-Time Radiography (RTR)
Visual Examination (VE)
Nondestructive Assay (NDA)
Performance Demonstration Program (PDP)
WIPP Waste Information System/Waste Data System (WWIS/WDS)
Container Management

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

Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF
CBFO Quality Assurance Program Document (QAPD), DOE/CBFO-94-1012

Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant Project (WAC), DOE/WIPP-02-3122

CCP Transuranic Waste Characterization Quality Assurance Project Plan (QAPjP),
CCP-PO-001

CCP Transuranic Waste Certification Plan, CCP-PO-002

CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC),
CCP-PO-003

CCP/SRS Interface Document, CCP-PO-004

Related technical and quality assurance implementing procedures

2.2 Purpose

The audit team evaluated the continued adequacy, implementation, and effectiveness of SRS/CCP TRU waste activities as they relate to the WIPP HWFP for CH SCGs S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste.

3.0 AUDIT TEAM AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Court Fesmire	Audit Team Management Representative, CBFO
Priscilla Y. Martinez	Audit Team Leader (ATL), CBFO Technical Assistance Contractor (CTAC)
Charlie Riggs	ATL, CTAC
Earl Bradford	Auditor, CTAC
Rick Castillo	Auditor, CTAC
Greg Knox	Auditor, CTAC
Katie Martin	Auditor, CTAC
Jack Walsh	Auditor, CTAC
Margie Martinez	Auditor, CTAC
Paul Gomez	Technical Specialist, CTAC
Jim Oliver	Technical Specialist, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Rhett Bradford	Technical Specialist, CTAC
Mavis Lin	Technical Specialist, CTAC

OBSERVERS

Thomas Morgan	CBFO
Kenneth Licklitter	CBFO Contractor
Steve Holmes	New Mexico Environment Department (NMED)
Tim Hall	NMED
Connie Walker	NMED Contractor

4.0 AUDIT PARTICIPANTS

SRS and CCP personnel contacted during the audit are identified in Attachment 1. A pre-audit meeting was held at the SRS in trailer 707-10E, November 14, 2011. Daily briefings were held with SRS and CCP management and staff to discuss issues and potential deficiencies. The audit was concluded with a post-audit meeting held at SRS in trailer 707-10E and via teleconference with personnel at the Skeen-Whitlock Building in Carlsbad, NM, on November 17, 2011.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

This audit was performed to assess the ability of SRS/CCP to characterize CH SCG S3000 homogeneous solids waste, S4000 soils/gravel waste, and S5000 debris waste to the requirements specified in the CBFO QAPD, the HWFP *Waste Analysis Plan* (WAP), and the WAC. The related characterization methods assessed were AK, HSG Sampling and Analysis, Solids Sampling and Analysis, RTR, VE, and NDA. Other areas evaluated were project-level data V&V, data quality objective (DQO)

reconciliation, the preparation of Waste Stream Profile Forms (WSPFs), WWIS/WDS data entry, the PDP, and the SRS/CCP QA program.

The audit team concluded that the applicable SRS/CCP TRU waste characterization activities as described in the associated SRS/CCP implementing procedures are satisfactory in meeting upper-tier requirements. Attachment 2 contains a Summary Table of Audit Results. Attachment 3 contains a table Listing of Audited Documents. Attachment 4 is a List of the Processes and Equipment Reviewed During the Audit.

Details of audit activities are described below.

5.2 General

5.2.1 Results of Previous Audits

The results of CBFO recertification Audit A-11-01 of SRS/CCP were examined and the audit team determined that the concerns identified in the audit have been addressed.

5.2.2 Changes in Program or Operations

There were no changes in Program or Operations since Audit A-11-01.

5.2.3 New Programs or Activities Being Implemented

RTR Unit 4 was certified to characterize the standard large box 2 (SLB2) and the Large Container Non-Destructive Examination (LCNDE) Unit was certified to characterize the standard waste box (SWB) and SLB2.

5.2.4 Changes in Key Personnel

Joe Stepzinski has been replaced by Pat Tilmon in the position of SRS/CCP Vendor Project Manager (VPM). Craig Simmons is no longer the SRS/CCP Site Project Manager (SPM). He has been replaced by Beverly Schrock for CH waste and Irene Quintana for RH waste. No other changes in key personnel have been made since Audit A-11-01 was performed.

5.3 Quality Assurance Activities

Personnel Qualification and Training

The audit team conducted interviews with responsible personnel and reviewed implementing procedures relative to the training and qualification of personnel to determine the degree to which the procedures adequately address upper-tier HWFP and QAPD requirements. CCP-QP-002, *CCP Training and Qualification Plan*, was reviewed to determine the degree to which the procedure adequately addresses upper-tier requirements.

Personnel training records associated with CH activities for RTR, NDA, VE, HSG Sampling and Analysis, AK, and SPM were examined to verify implementation of associated requirements and to verify that personnel performing characterization activities are appropriately qualified. Records reviews included the SRS/CCP List of Qualified Individuals (LOQI) and qualification cards, which included required reading, capability demonstrations, etc. No concerns were noted.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for personnel qualification and training are adequately established for compliance with upper-tier requirements, satisfactorily implemented, and effective.

Nonconformance Reporting

The audit team conducted interviews with responsible personnel and reviewed implementing procedures relative to the control of nonconformances to determine the degree to which procedures adequately address upper-tier HWFP and QAPD requirements. The team reviewed procedure CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*. Evidence of the control of nonconformances was verified through review of the nonconformance report (NCR) logs/database and NCRs issued.

Randomly selected NCRs were evaluated to ensure that conditions adverse to quality were appropriately identified, documented, dispositioned, resolved, and tracked through closure. The selected NCRs were reviewed, including verification to ensure that SRS/CCP was appropriately documenting and reporting WAP-related nonconformances (identified at the site project management level) to CBFO as required. No concerns were identified. The following NCRs were evaluated:

NCR-SRS-2166-11	NCR-SRS-2010-11
NCR-SRS-2445-11	NCR-SRS-2357-11
NCR-SRS-3050-11	NCR-SRS-2702-11
NCR-SRS-3069-11	NCR-SRS-2785-11
NCR-SRS-0005-11	NCR-SRS-3229-11
NCR-SRS-0036-11	NCR-SRS-3270-11
NCR-SRS-3525-11	

The procedures reviewed and objective evidence assembled and evaluated during the audit demonstrated that the applicable requirements for control of nonconformances are adequately established, satisfactorily implemented, and effective.

Records

The audit team reviewed implementing procedures relative to the control and administration of QA records to determine the degree to which the procedures adequately address upper-tier HWFP and QAPD requirements. The procedures reviewed included CCP-QP-008, *CCP Records Management*, and CCP-QP-028, *CCP Records Filing, Inventorying, Scheduling, and Dispositioning*. Evidence of the control of

QA records was verified through review of the SRS/CCP CH Records Inventory and Disposition Schedule (RIDS) dated 7/28/11. No concerns were identified.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for QA records are adequately established, satisfactorily implemented, and effective.

5.4 Technical Activities

Evaluations of applicable SRS/CCP technical activities are summarized in the following subsections.

5.4.1 Data Validation and Verification

The audit team verified the adequacy of the procedures and the implementation of those procedures in support of SRS/CCP characterization. The CCP provided batch data reports (BDRs) in support of CH characterization activities completed at the SRS. The SPM verified BDRs are as follows:

RTR

SR4RTR0130	SRSRTR0494
SR4RTR0199	SRLBR0006

VE

SRVEFW0313
SRVEFW0325
SRVEFW0350

HSG

SRHSG1106	ECL11031M
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Solids

SSC11-00002	ALD11020V	ALD11020S
ALD11020N	ALD11020M	

Nondestructive Assay

SRLBC0267	SRLBC0411	SRLBC0477
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The audit team found the BDRs to be complete and adequate.

The audit team reviewed two WSPFs for waste streams SR-MD-SOIL, SR-W027-HBL-BOX, and SR-W027-HBL-BOX change notice. The WSPFs were found to be properly completed and placed in records.

The audit team verified the documentation supporting the random selection of containers for solids waste streams SR-W027-221H-HOM Lot 1 and revision, SR-SDD-HOM-B, SR-SDD-HOM-A, SR-W026-221F-HOM Lot 1, SR-MD-HOM-C Lot 1, and SR-

W027-773A-HOM Lot 1. The team also verified the documentation supporting the random selection of containers for HSG sampling and analysis. The waste streams included SR-W026-221F-HET Lot 3; Subsequent HB-Line selection for SR-W027-HBL-BOX and Lot 3; SR-LA-PAD1 Lot 1 and subsequent sampling for Lot 2; heterogeneous organic and inorganic debris from SR-W027-235F-HET and subsequent sampling for Lots 2 and 3; the sampling of two entire waste streams in SR-W027-221F-HET-C-D and SR-W027-221F-HET-E; subsequent sampling for SR-W027-221F-HET-A Lot 3; and the Lot 4 sampling for waste stream SR-SWMF-HET-A. The team found the waste stream profiles were satisfactorily documented and the random sample selections for the waste streams collected since the previous audit also satisfactorily documented and adequate.

The documentation of quarterly report reviews of data-generation level BDRs had been properly maintained since the previous audit. The documentation was found to be in proper order, complete, and adequate. During the third and fourth quarters of 2010, visual examination was not performed at the site; therefore there are no reports for those quarters. Headspace gas sampling was not performed during the fourth quarter of 2011; therefore there is no report for that quarter.

The BDRs were found to be complete, and the SRS/CCP was previously evaluated for HSG field reference standards (FRS) in 2008. The HSG samples and the solid samples were found to be properly selected and reported, and properly disposed. The SRS/CCP maintains appropriate records for the collocated samples, properly documenting the relative percent difference and F-test. No concerns were identified.

Overall, Data Validation and Verification activities were determined to be adequate, satisfactorily implemented, and effective.

5.4.2 Solids and Soils/Gravel Sampling and Analysis

Solids and soils/gravel sampling and analysis and associated data generation-level V&V are performed at the Idaho National Laboratory (INL) under a separate certified program. However, the audit team did evaluate the random selection requirements for solids sampling, along with the associated BDRs. Additionally, the audit team evaluated the results of the analysis provided to SRS/CCP as part of the project-level data V&V evaluations. No concerns were identified.

Overall, the audit team determined that the requirements for solids and soils/gravel Sampling and Analysis were adequate, satisfactorily implemented, and effective.

5.4.3 Acceptable Knowledge

The audit team evaluated the AK process for characterizing the three SCGs of CH TRU waste. This recertification audit was based on the requirements contained in the latest revision of the WIPP Resource Conservation and Recovery Act (RCRA) permit and described in the WAP, in addition to AK requirements identified in the WAC. The audit team reviewed documentation to support all applicable AK requirements in the WAP C6-1 and C6-3 checklists, and compiled and reviewed objective evidence to demonstrate compliance with both the WAP and the WAC

The audit team reviewed specific and complete AK program documentation for CH debris waste stream SR-W027-HBL-BOX; CH solids waste stream SR-AGNS-HOM, originally generated at the Allied-General Nuclear Services Plant; and CH soils waste stream SR-MD-SOIL, generated during remediation activities at the Mound Plant and shipped to SRS for certification and characterization.

The objective evidence reviewed and compiled included the requisite Summary Reports, numerous AK source documents, WAP-compliant approved or draft WSPFs and attachments, and BDRs for HSG, solids and soils/gravel sampling and analysis, RTR and NDA. Random container selection memos for HSG and solids sampling lots, as appropriate, were reviewed along with corresponding HSG and solids analysis Summary Reports. In addition, the audit team reviewed for each waste stream cited above the AK Documentation Checklist (attachment 1), the AK Source Document Reference List (attachment 4), the AK Hazardous Constituents List (attachment 5), the AK Waste Form, Waste Material Parameters, Prohibited Items and Pkg. (attachment 6) along with the applicable justification memo for waste material parameter weight estimates, and the AK Container List (attachment 8) with memos supporting the process for adding containers to the waste streams.

Examples of the resolution of AK discrepancies in the AK record and at characterization, NCRs dealing with prohibited items, AK Accuracy reports, and the most recent internal surveillance were also collected and examined, along with screenshots from the item description code (IDC) database. Requisite training records were reviewed by the audit team for AK experts (AKEs) and SPMs. The WAP-required container traceability exercise was conducted for a total of six waste containers from the three waste streams. The drums selected provided BDRs for HSG sampling and analysis, solids and soils/gravel sampling and analysis, RTR and NDA. Additional traceability documentation was collected through IDC database screenshots, the AK tracking spreadsheet, and container input forms.

The audit team issued one Recommendation, which included the submission of the completed WAP Compliance Tracking Tables addressing the new AK WAP requirements, for each of the three waste streams examined (see section 6.4, Recommendation 1). Changes to the text in the tracking tables and additions to the AK Summary Reports were captured in freeze files, reviewed, and agreed upon. Copies of these documents will be appended to the AK Summaries submitted with the final report to NMED in keeping with the agreement established between CBFO and NMED in February 2011.

Overall, the Acceptable Knowledge Program was determined to be adequate, satisfactorily implemented, and effective.

5.4.4 Headspace Gas Sampling and Analysis

The audit team conducted interviews and examined related records in the area of SRS/CCP HSG sampling activities. SRS/CCP performs HSG sampling using SUMMA® canisters for sample collection. Samples are then shipped to INL for analysis.

The audit team reviewed SRS/CCP procedures CCP-TP-093, Rev. 16, *CCP Sampling of TRU Waste Containers*; CCP-TP-162, Rev. 1, *Random Selection of Containers for Solids and Headspace Gas Sampling and Analysis*; CCP-PO-005, Rev. 22, *CCP Conduct of Operations*; CCP-TP-106, Rev. 7, *CCP Headspace Gas Sampling Batch Data Report Preparation*; and CCP-QP-016, Rev. 15, *CCP Control of Measuring and Testing Equipment*.

Sampling BDRs SRHSGS1101 and SRHSGS1106 for debris waste was examined. Collection of duplicate samples and a memo dated 10/13/08 authorizing SRS/CCP to cease collection of a FRS was verified. The Drum Age Criteria (DAC), operational logbook, sample chain of custody (COC), and transfer to the analytical laboratory were reviewed and found to be compliant. Measuring and test equipment (M&TE) certifications were audited and found to be acceptable. Training and qualification of sampling personnel were confirmed to be acceptable to the CCP program.

Interviews were conducted with sampling personnel. There was no TRU waste sampling activity during the audit. A mock-up demonstration of HSG sampling operation on PAD 6 at the SRS facility was witnessed by the audit team. No concerns were identified during the audit.

Overall, the Headspace Gas Sampling and Analysis activities were determined to be adequate, satisfactorily implemented, and effective.

5.4.5 Real-Time Radiography

The audit team evaluated the adequacy, implementation, and effectiveness of SRS/CCP characterization and certification of SCGs S3000 solids waste, S4000 soils/gravel waste, and S5000 debris waste using the RTR characterization process.

The audit team evaluated the following BDRs and their associated audio/video media:

- SRSRTR0501
- SRSRTR0494
- SRSRTR0491
- SRLBR0008
- SR4RTR0178
- SR4RTR0130

The audit team toured the Low Activity Waste Vault-Cell 2 to observe the operation of the LCNDE system. The scan of SLB2 SR307250 was observed. The team toured PAD 4 to observe the RTR-4 and RTR-15 Units. Both units were in operation at the

time of the tour. During the walk-through, the audit team verified the acceptability of equipment, verified that RTR operations were performed to current procedures, interviewed RTR personnel, and reviewed operational logbooks.

The audit team evaluated evidence of RTR operator-required test and training audio/video media for five RTR operators. Records of RTR operator training and qualifications were examined, including the Training Container Evaluation Data Sheets dated 6/27/11. The audit team verified that RTR operators were appropriately qualified as required.

Procedures evaluated were SRS/CCP procedures CCP-TP-053, Rev. 11, *CCP Standard Real-Time Radiography (RTR) Inspection Procedure*, and CCP-QP-002, Rev. 31, *CCP Training and Qualification Plan*.

During the audit, the team identified one concern (see section 6.1, CAR 12-002) which was deemed inattention to detail.

Overall, Real-time Radiography activities were determined to be adequate, satisfactorily implemented, and effective.

5.4.6 Visual Examination

The audit team evaluated the adequacy, implementation, and effectiveness of SRS/CCP characterization and certification of SCGs S3000 solids waste, S4000 soils/gravel waste, and S5000 debris waste using the RTR characterization process.

The audit team evaluated the following BDRs:

- SRSVEFW0313
- SRSVEFW0325
- SRSVEFW0333
- SRSVEFW0350

SRS/CCP uses the two-operator method when performing VE characterization activities for CH waste, in which two qualified operators visually examine the waste and place it into 55-gallon drums.

The audit team performed a walk-through of the F-Canyon facility, Building 221-F, where VE of CH waste is performed. No VE activities were being performed at the time of the audit.

The audit team examined training and qualification records for three VE personnel and concluded the required training was adequate and qualifications were current. The audit team also confirmed the appointment of an SRS/CCP VE Expert (VEE), as required.

The procedures evaluated were CCP-TP-113, Rev. 16, *CCP Standard Contact-Handled Waste Visual Examination*, and CCP-QP-002, Rev. 31, *CCP Training and Qualification Plan*. No concerns were identified

Overall, Visual Examination activities were determined to be adequate, satisfactorily implemented, and effective.

5.4.7 Nondestructive Assay

The audit team assessed the adequacy, implementation, and effectiveness of the NDA systems used at SRS as part of the CCP to characterize waste from SCGs S3000 solids waste, S4000 soils/gravel waste, and S5000 debris waste. Specifically, the audit team evaluated the Box Segmented Gamma System (BSGS) and the Box Neutron Assay System (BNAS). These systems were previously evaluated by CBFO in November 2010 as part of Audit A-11-01.

The BSGS (also referred to as the Segmented Gamma Box Counter (SGBC) in some documents) and the BNAS (also referred to as the Nondestructive Assay Box Counter (NABC) or the Savannah River Box Counter (SRBC)) can act as standalone assay systems or work in concert to assay wastes contained in 55-gallon (208-liter) drums, SLB2s, and SWBs.

The large box counter system consists of a segmented gamma scanner (SGS) and a separate neutron assay counter. The SGS uses four high-purity germanium (HPGe) detectors to measure passive gamma emissions from the waste. The system can measure three different types of containers: 55-gallon drums, SWBs; and SLB2s. The SGS utilizes both a transmission and an efficiency correction. Transmission correction is accomplished by scanning the waste with an active gamma source (in this case, two 250 mCi ^{60}Co sources (approximate as of date of installation)) paired with two 5-inch diameter X 4-inch deep sodium iodide detectors. Each ^{60}Co source has a variable attenuation shutter that is independently controlled so that a transmission correction can be optimized for each measurement segment.

Neutron measurement is performed by the BNAS, which has two operating modes: efficiency-determined multiplicity analysis mode and standard neutron coincidence counting (NCC) mode. The counter utilizes 320 ^3He proportional tubes arranged in 4P geometry about the assay cavity and divided into 80 counting channels. Matrix correction is accomplished by using an Add-A-Source (AAS) where the empty chamber response to the AAS is compared to system response with the waste present and the AAS inserted to determine neutron moderation characteristics of the waste matrix. NDA 2000 software is used to control these systems.

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

- System stability as evidenced by the implementation and effectiveness of quality control measurements, calibration verifications, and weekly interfering matrix checks
- Applicability of each system's calibration and operational range to the matrix, geometry, and radionuclide content of samples assayed since Audit A-10-01
- Successful participation in the CBFO-sponsored NDA PDP Cycles 18A and B11A
- Completed BDRs to ensure data are reported and reviewed as required
- Data storage and retrievability
- Continued operability and condition of the NABC systems since Audit A-11-01

The audit team interviewed NDA personnel, observed equipment and practices, and examined electronic and paper copies of reports and records.

Overall, the audit team concluded that Nondestructive Assay activities were adequate, satisfactorily implemented, and effective.

5.4.8 Performance Demonstration Program

SRS/CCP only performs Headspace gas sampling. HSG samples are analyzed by the INL analytical laboratories and are certified by CBFO. The INL analytical Laboratories participate in the PDP Program.

The audit team also verified that SRS/CCP has successfully participated in the CBFO-sponsored NDA PDP Cycles 18A and B11A. CCP sought and received approval for performing PDP box measurements using both the 60- and 20-minute count times.

5.4.9 WIPP Waste Information System/Waste Data System

The audit team evaluated implementation of the CCP TRU Waste Certification and WWIS/WDS data entry procedure for data entry using the WWIS/WDS data entry spreadsheet. The evaluation included data population of the spreadsheet, review of data entry, waste certification by the Waste Certification Official (WCO), submittal for WWIS review/approval, review of shipping packages, and records submittal. The audit team reviewed CH WWIS/WDS data packages for four drums (SR57055347, SR57055358, SR57055362, and MDL0518000). No concerns were identified.

Overall, the WIPP Waste Information System/Waste Data System activities were determined to be adequate, satisfactorily implemented, and effective.

5.4.10 Container Management

Container management activities were evaluated by a walk-through of SRS container storage areas, examination of shipping documents, and interview with the CCP Container Management Specialist (CMS). SRS personnel are trained to CCP-TP-035,

CCP Container Management, and perform the movement and storage of containers. The CCP CMS verifies these activities. Container tracking is performed by the CMS by obtaining container numbers of stored containers in the field as they are transferred from SRS to CCP, then locating the containers in the CMS and CCP databases. The audit team verified that containers with NCRs were stored separately from containers without NCRs. Storage of containers ready for shipment was verified to be satisfactory to preclude ineligible containers from being shipped to WIPP.

Overall, Container Management activities were determined to be adequate, satisfactorily implemented, and effective.

6.0 CORRECTIVE ACTIONS, OBSERVATIONS, AND RECOMMENDATIONS

6.1 Corrective Action Reports

During the audit, the audit team may identify conditions adverse to quality (CAQs) 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.

Three conditions adverse to quality, necessitating the generation of CAR 12-002, resulted from this audit, all in the area of project-level validation and verification.

CAR 12-002

The SPM oversees TRU waste characterization and certification activities per procedure CCP-PO-001, Rev. 20. Section C3-10b states, "Data validation and verification at this level [*Project Level*] involves scrutiny and signature release from the SPM."

The conditions identified by the audit team concerned:

- WSPF numbers that were incorrect on several CCP Data Evaluation Narratives;
- In Attachment 4 of the CCP SPM Nondestructive Assay Project Level Validation Checklist and Summary, question 10 did not indicate the correct information under the Criteria Met column and Comments/Qualifiers section;
- The Independent Technical Reviewer (ITR) checklist for RTR did not contain complete procedure and revision information on Attachment 3, Item 2, in BDR SRLBR0008.

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant.

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

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

No CDA were identified during the audit.

6.3 Observations

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

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

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

The following Observation was identified during the audit.

Observation 1

Several inconsistencies were found in the AK documentation describing the AK documentation type on Attachment 3 (AK Source Document Summary) and Attachment 11 (AK Source Document Discrepancy Resolution Form).

6.4 Recommendations

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

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

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

The audit team presented one Recommendation to SRS/CCP for management consideration.

Recommendation 1

The audit team recommends that SRS/CCP revise the affected AK documentation to ensure compliance with the December 2010 WAP requirements. NMED WAP Compliance Tracking Tables completed by the CCP AKEs were reviewed for a CH TRU mixed waste stream that was examined during the AK portion of this certification audit. Appropriate and agreed-upon changes were made to the forms and freeze files were drafted for each of the AK Summary documents to be submitted to document control for incorporation into the next revision. The tracking tables and the freeze files will be attached to the AK Summary as part of the record submitted to NMED in keeping with the agreement entered into at the first audit after the new WAP went into effect.

The AK Summaries affected are CCP-AK-SRS-4, Rev. 13 for waste stream SR-W027-HBL-BOX; CCP-AK-8, Rev. 7 for waste stream SR-MD-SOIL; and CCP-AK-11, Rev. 2 for waste stream SR-AGNS-HOM-FBL.01

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit

Attachment 2: Summary Table of Audit Results

Attachment 3: Listing of Audited Documents

Attachment 4: Processes and Equipment Reviewed During Audit

PERSONNEL CONTACTED DURING THE AUDIT

PERSONNEL CONTACTED DURING AUDIT A-12-02				
NAME	TITLE/ORG	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Adams, James	VEE;NFT/CCP	X	X	X
Armijo, Cheryl	Records Clerk; CCP/Stoller	X	X	
Barr, Sean	E-Area RPD FM; SRSW	X		
Billett, Michele	Training Coordinator; CCP Training		X	
Brookshire, John	RTR Oper.; RTR/CCP		X	
Cantu, Adela	CCP SPM; WTS/CCP			X
Ceo, Bob	NDA; MCS/Canberra		X	
Crosby, Dan	NDA; MCS/Canberra		X	
Davis, Will	NFT/Container Management; CCP		X	
Doherty, Mark	AKE; CCP/TECH SPECS	X	X	X
Fussel, Buddy	SRS/CCP VPM; SRS/CCP	X		X
Gilmour, John	Director SWM; SRNS	X		X
Harper, Johnny	DOE-SR	X		
Harrison, Jeff	AKE; CCP/TECH SPECS	X	X	
Harvill, Joe	NDA & DTC Lead; WTS/CCP	X	X	
Hasty, Jeff	Solid Waste; SRWS	X		
Huff, Andrea	RTR Oper; RTR/CCP		X	
Kantrowtz, Rich	Lead SPM; CCP			X
Kinard, Stacy	NFT			X
Kirkes, Creta	RCT/WCOWCA; WTS/CCP		X	
Kokovich, Mark	E-Area Facility Mgr.; SRNS-SWM	X		

PERSONNEL CONTACTED DURING AUDIT A-12-02				
NAME	TITLE/ORG	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Lee, Ronnie	PM; WTS/CCP	X	X	
McCoy, David	RTR Lead Operator; MCS/CCP	X	X	X
Morgan, Tom	DOE CCP Manager; DOE/CBFO	X		
Muse, Steve	CCP Quality Assurance Engineer; WTS/CCP	X	X	
Nelson, Laura	SPM; CCP			X
Ott, Derek	RH Rad. Characterization; WTS/CCP		X	X
Papp, Michael	AKE; Tech Specs/CCP	X	X	
Pearcy, Mark	SPM; WTS/CCP			X
Pearcy, Sheila	CCP Records Manager; CCP Records/Stoller	X	X	X
Ploetz, D.K.	CCP Manager; WTS/CCP			X
Quintana, Irene	RHPM; WTS/CCP	X	X	X
Redmond, Robert S.	RTR Oper; RTR/CCP		X	
Remington, Dan	NDA/Lead Operator; MCS		X	
Schrock, Beverly	SPM; CCP	X	X	X
Sensibaugh, Michael	SRS/CCP Project Manager; WTS/CCP	X	X	X
Shepley, Todd	NDA/DTC Lead Operator; CCP/MCS	X	X	X
Simpson, Kenneth	RTR/VJT	X	X	X
Stallings, Andrew	NDE Cog Eng; CCP			X
Stepzinski, Joe	VPM; CCP	X		X
Stone, Keith	RCT Engineering and Projects Support; Manager			X

PERSONNEL CONTACTED DURING AUDIT A-12-02				
NAME	TITLE/ORG	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Templeton, Bret	NDA Operator; MCS/Canberra		X	
Thompson, Joel	FGA/HSG Operator/ITR; NFT/CCP	X	X	X
Watson, Lisa	AKE; LANL-CO	X	X	
Whitson, Ronald	DTC; MCS	X	X	

Summary Table of Audit Results

Documents	Concern Classification				QA Evaluation		Technical
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
Activity							
Acceptable Knowledge			1	1	A	S	E
Headspace Gas					A	S	E
Real-Time-Radiography					A	S	E
Visual Examination					A	S	E
Project Level V&V	1				A	S	E
Nonconformance Reporting					A	S	E
Training					A	S	E
Records					A	S	E
WWIS/WDS					A	S	E
Nondestructive Assay					A	S	E
TOTALS	1	0	1	1	A	S	E

Definitions

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

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

Rec = Recommendation
A = Adequate
NA = Not Adequate

LISTING OF AUDITED DOCUMENTS

	Document No.	Document Title
1.	CCP-PO-001	CCP Transuranic Waste Characterization Quality Assurance Project Plan
2.	CCP-PO-002	CCP Transuranic Waste Certification Plan
3.	CCP-PO-003	CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)
4.	CCP-PO-004	CCP/SRS Interface Document
5.	CCP-PO-005	CCP Conduct of Operations
6.	CCP-PO-006	CCP Conduct of Operations Matrix
7.	CCP-PO-008	CCP Quality Assurance Interface with the WTS Quality Assurance Program
8.	CCP-QP-002	CCP Training and Qualification Plan
9.	CCP-QP-005	CCP TRU Nonconforming Item Reporting and Control
10.	CCP-QP-008	CCP Records Management
11.	CCP-QP-016	CCP Control of Measuring and Testing Equipment
12.	CCP-QP-021	CCP Surveillance Program
13.	CCP-QP-028	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
14.	CCP-TP-001	CCP Project Level Data Validation and Verification
15.	CCP-TP-002	CCP Reconciliation of DQOs and Reporting Characterization Data
16.	CCP-TP-003	CCP Data Analysis for S3000, S4000, and S5000 Characterization
17.	CCP-TP-005	CCP Acceptable Knowledge Documentation
18.	CCP-TP-028	CCP Radiographic Test and Training Drum Requirements
19.	CCP-TP-030	CCP TRU Waste Certification and WWIS/WDS Data Entry
20.	CCP-TP-035	CCP Container Management
21.	CCP-TP-050	CCP Mobile Segmented Gamma Scanner Calibration Procedure
22.	CCP-TP-051	CCP Mobile Segmented Gamma Scanner Operation
23.	CCP-TP-052	CCP Mobile Segmented Gamma Scanner Data Reviewing, Validating, and Reporting
24.	CCP-TP-053	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
25.	CCP-TP-056	CCP-HSG-Performance Demonstration Program
26.	CCP-TP-058	CCP-NDA-Performance Demonstration Program
27.	CCP-TP-066	CCP Radiography Screening Procedure for Prohibited Items
28.	CCP-TP-074	CCP Large Container Non-Destructive Examination (LCNDE) Operating Procedure
29.	CCP-TP-075	CCP RTR #15 Operating Procedure
30.	CCP-TP-082	CCP Preparing and Handling Waste Containers for HSG Sampling
31.	CCP-TP-087	CCP Scale Operations
32.	CCP-TP-093	CCP Sampling of TRU Waste Containers
33.	CCP-TP-098	CCP Installation of the NucFil Headspace Sample Port
34.	CCP-TP-106	CCP Headspace Gas Sampling Batch Data Report Preparation
35.	CCP-TP-113	CCP Standard Contact-Handled Waste Visual Examination
36.	CCP-TP-136	CCP Standardized Prohibited Item Remediation
37.	CCP-TP-139	CCP in Situ Object Counting System Nondestructive Assay Operating System
38.	CCP-TP-145	CCP RTR#4 Operating Procedure
39.	CCP-TP-162	CCP Random Selection of Containers for Solids and Headspace Gas Sampling and Analysis
40.	CCP-TP-163	CCP Evaluation of Waste Packaging Records for Standard Visual Examination of Records
41.	CCP-TP-180	CCP Analytical Sample Management
42.	CCP-TP-189	CCP Box Segmented Gamma System (BSGS) Operating Procedure
43.	CCP-TP-190	CCP Box Segmented Gamma System (BSGS) Calibration Procedure

LISTING OF AUDITED DOCUMENTS

	Document No.	Document Title
44.	CCP-TP-191	CCP Box Neutron Assay System (BNAS) Operating Procedure
45.	CCP-TP-192	CCP Box Neutron Assay System (BNAS) Calibration Procedure
46.	CCP-TP-193	CCP Data Reviewing, Validating, and Reporting Procedure for the Nondestructive Assay Box Counters

Processes and Equipment Reviewed During Audit A-12-02 of the SRS-CCP

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
NEW PROCESSES OR EQUIPMENT				
N/A	N/A	NONE	N/A	N/A
PREVIOUSLY APPROVED PROCESSES OR EQUIPMENT				
The following were evaluated for recertification during CBFO Audit A-12-02				
1LCNDE	Real-time Radiography Procedure – CCP-TP-053 and CCP-TP-074 Description – Large Container Non-Destructive Examination (LCNDE) Unit – standard waste boxes (SWBs) and SLB2s	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	YES	YES
1NABC1	Nondestructive Assay Procedures – CCP-TP-189 and CCP-TP-191 Description – Box Segmented Gamma System (BSGS) and Box Neutron Assay System (BNAS)	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	N/A	YES
1RR3	Real-time Radiography Procedure – CCP-TP-053 Description – RTR-15, 55-gallon drums (PAD 4)	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	YES	YES
1RR4	Real-time Radiography Procedure – CCP-TP-053 and CCP-TP-145 Description – RTR-4, 55-gallon drums and standard waste boxes (SWBs), Standard large box 2s (SLB2s)	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	YES	YES
VISUAL	Visual Examination Procedure – CCP-TP-113 Description – VE QC Check for RTR, VE in lieu of RTR, VET for Retrievably Stored Waste	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	YES	YES
N/A	Headspace Gas Sampling Procedure – CCP-TP-093	Solids (S3000) Soils/Gravel (S4000)	YES	N/A

Processes and Equipment Reviewed During Audit A-12-02 of the SRS-CCP

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
	Description – CCP Sampling of TRU Waste Containers using SUMMA® Canisters	Debris (S5000)		
N/A	Acceptable Knowledge (AK)	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	YES	YES
N/A	Data Generation and Project Level Validation and Verification (V&V)	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	YES	YES
N/A	WIPP Waste Information System/Waste Data System (WWIS/WDS)	Solids (S3000) Soils/Gravel (S4000) Debris (S5000)	YES	YES
LIST OF DEACTIVATED EQUIPMENT				
N/A	N/A	None	N/A	N/A