



United States Government

Department of Energy

# memorandum

Carlsbad Field Office  
Carlsbad, New Mexico 88221

DATE: March 25, 2002

REPLY TO  
ATTN OF: CBFO:QA:ALH:GS:02-1008:UFC 2300.00

SUBJECT: Audit Report A-02-20, Savannah River Site (SRS) Characterization of Waste Audit

TO: Herbert Crapse, SR

The Carlsbad Field Office (CBFO) conducted an audit of new headspace gas (HSG) sampling and analysis systems and processes at the Savannah River Site (SRS). The audit was conducted on March 13-14, 2002. The audit team concluded that the SRS technical and quality assurance programs for HSG compositing with the existing unit and the new canister cleaning unit were adequate in accordance with the WIPP Hazardous Waste Facility Permit and the CBFO QAPD. The audit team also concluded that the SRS procedures for these activities were being satisfactorily implemented and the evaluated processes were effective.

The status of the new Building 305-a HSG analysis system, the Sea-Land storage units, and the NucFil 050 dart was indeterminate.

If you have any questions or comments, please contact me at (505) 234-7423.

*Ava L. Holland /s/*  
Ava L. Holland  
Quality Assurance Manager

Attachment



020324



cc w/attachments:

K. Watson, CBFO	*ED
C. Zvonar, CBFO	*ED
M. Eagle, EPA	*ED
S. Monroe, EPA	*ED
E. Feltcorn, EPA	*ED
S. Zappe, NMED	*ED
B. Walker, EEG	*ED
D. Winters, DNFSB	*ED
J. D'Amelio, SRS	*ED
M. Mason, SRS	*ED
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**U.S. DEPARTMENT OF ENERGY  
CARLSBAD FIELD OFFICE**

**AUDIT REPORT**

**OF THE**

**SAVANNAH RIVER SITE**

**AIKEN, SOUTH CAROLINA**

**AUDIT NUMBER A-02-20**

**March 13-14, 2002**

**AUDIT REPORT OF TRU WASTE CHARACTERIZATION USING NEW  
HEADSPACE GAS SAMPLING AND ANALYSIS SYSTEMS  
AND PROCESSES**



**Prepared By:** Charles L. Riggs /s/  
Charles L. Riggs  
Audit Team Leader, CTAC

**Date:** 3/19/02

**Approved By:** Ava L. Holland /s/  
Ava L. Holland  
Quality Assurance Manager

**Date:** 3/25/02

## 1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-02-20 was conducted to evaluate the adequacy, implementation, and effectiveness of Savannah River Site (SRS) transuranic (TRU) waste characterization activities for new headspace gas (HSG) sampling and analysis systems and processes relative to the requirements detailed in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP) and the CBFO Quality Assurance Program Document (QAPD).

The audit was conducted at the SRS facility March 13-14, 2002. The audit team concluded that the overall adequacy of the SRS technical and quality assurance (QA) programs, as applicable to compositing with the currently certified HSG analysis equipment and the new canister cleaning station, was satisfactory in meeting requirements. The audit team also concluded that overall, the defined QA and technical programs for these activities were satisfactorily implemented, in accordance with the SRS Quality Assurance Project Plan (QAPjP) and its implementing procedures, and that the processes were effective. The status of the new HSG analysis equipment at Building 305-A, Sea-Land storage units, and the NucFil HSG sampling port dart installation system, was indeterminate.

The audit team did not identify any conditions adverse to quality. No Corrective Action Reports (CARs) or Observations were issued, no findings were Corrected During the Audit (CDA), and no Recommendations are being offered for SRS management consideration.

## 2.0 SCOPE AND PURPOSE

### 2.1 Scope

The audit team evaluated the adequacy, implementation, and effectiveness of the SRS TRU waste characterization activities, in particular, additional HSG sampling and analysis systems and processes. The following elements were evaluated:

#### Quality Assurance

Personnel Qualification and Training  
Quality Improvement  
Documents and Records

#### Technical

##### Headspace Gas

- Compositing with the currently certified HSG analysis equipment
- New cleaning station
- New HSG analysis equipment Building 305-A (including compositing)
- Sea-Land Storage Units
- NucFil Headspace Gas Sampling Port Dart Installation System

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

*Waste Isolation Pilot Plant Hazardous Waste Facility Permit*

*Quality Assurance Program Document, CAO-94-1012*

Savannah River Site WIPP Disposal Program Quality Assurance Project Plan, WSRC-RP-99-01097

Savannah River Site WIPP Disposal Program Quality Assurance Program Document, WSRC-RP-99-01119

Related SRS technical and quality assurance implementing procedures

## **2.2 Purpose**

Audit A-02-20 was conducted to assess the level of compliance of SRS waste characterization activities as related to the additional HSG activities.

## **3.0 AUDIT TEAM AND OBSERVERS**

### **AUDITORS/TECHNICAL SPECIALISTS**

Charlie Riggs  
William (BJ) Verret

Audit Team Leader, CTAC  
Technical Specialist, CTAC

## **4.0 AUDIT PARTICIPANTS**

SRS individuals involved in the audit process are identified in Attachment 1. A preaudit meeting was held in SRS Building 724-7E on March 13, 2002. Daily interfaces were held with SRS management and staff to discuss issues and potential deficiencies. The audit was concluded with a postaudit meeting held in Building 724-7E on March 14, 2002.

## **5.0 SUMMARY OF AUDIT RESULTS**

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

The audit team concluded that the applicable SRS TRU waste characterization activities, as described in the associated SRS implementing procedures for compositing, and the new cleaning station are adequate, satisfactorily implemented, and effective. The other activities audited were judged by the audit team to be indeterminate. Attachment 2 contains a summary table of audit results. Audit activities, including the identification of the objective evidence reviewed, are described below and in CBFO checklists or objective evidence reviewed forms. Attachment 3 contains a list of SRS documents that were included in the audit.

## 5.2 Quality Assurance Activities

The audit team evaluated personnel qualification and training, quality improvement, and documents and records as they related to the headspace gas activities. Overall, the quality assurance activities were determined to be adequate, satisfactorily implemented, and effective.

## 5.3 Technical Activities

Evaluations of applicable SRS technical activities are summarized below.

### 5.3.1 Headspace Gas

#### Compositing with the current certified HSG Analysis System

The audit team evaluated the compositing of HSG samples in the Area 724 laboratory. Personnel were interviewed and equipment, journals, and procedures were verified to be in place and adequate. Batch data reports 02-HSGA-009, 02-HSGA-010, and 02-HSGA-011 were reviewed.

Overall, HSG compositing activities were determined to be adequate, satisfactorily implemented, and effective.

#### New cleaning station

The audit team evaluated the new 15-port canister cleaning station in Building 724-8E by review of documentation and observation of the process. Results from the canister cleaning blank were also reviewed.

Overall, the new canister cleaning unit was determined to be adequate, satisfactorily implemented, and effective.

#### New HSG analysis unit in Building 305-A (including compositing)

The audit team evaluated the gas chromatography/mass spectrometer (GC/MS) analysis for volatile organic compounds (VOCs) and GC analysis for hydrogen and methane in Building 305-A. Personnel were interviewed and equipment, journals, and procedures were verified to be in place and adequate.

However, VOC batch data reports were not available for evaluation by the audit team. Therefore this area was judged by the audit team to be indeterminate.

#### Sea-Land storage units

The audit team evaluated the Sea-Land containers for storage of drums prior to HSG sampling. The three new containers are identical to the three approved during CBFO Audit A-02-09, Central Characterization Program (CCP) at SRS. The containers will

also be equipped with a pressure detector and a thermal curtain to allow sampling inside the container.

The Sea-Land containers did not have power available and the temperature and pressure detectors were not in service. Therefore this area was judged by the audit team to be indeterminate.

#### NucFil HSG Sampling Port Dart Installation system

The audit team observed a dry run of the HSG sampling port installation operations.

However, the SRS procedure was only a “draft” and the safety organization at SRS had not approved the use of the sampling port dart gun. Therefore this area was judged by the audit team to be indeterminate.

## **6.0 CORRECTIVE ACTIONS AND RECOMMENDATIONS**

### **6.1 Corrective Action Reports**

During the audit, the audit team may identify Conditions Adverse to Quality (CAQ) and document them on CARs.

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

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

No CARs resulted from this audit

### **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, using the following definitions:

*CAQ – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.*

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

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 CDA. 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.

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

No CDAs resulted from this audit.

### **6.3 Observations**

During the audit, the audit team may identify potential problems or 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 Observations or Recommendations using the following definitions:

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

*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 Observations resulted from this audit

### **6.4 Recommendations**

A Recommendation is a suggestion directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

No Recommendations were provided to SRS management during the audit.

## **7.0 LIST OF ATTACHMENTS**

Attachment 1: Personnel Contacted During the Audit

Attachment 2: Summary Table of Audit Results

Attachment 3: SRS Procedures Audited



**PERSONNEL CONTACTED DURING THE AUDIT**

<b>SRS PERSONNEL CONTACTED DURING AUDIT A-02-20</b>				
<b>NAME</b>	<b>TITLE/ORG</b>	<b>PREAUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST AUDIT MEETING</b>
Blair, David	WSRC, Chemist		X	
Cheeks, Kenneth E.	WSRC, FSSD/ALD			X
Conrad, M. F. 'Dutch'	Facility Manager, SWO			X
Crapse, Bert	DOE/SR, TRU Program Manager	X		X
Culligan, Brian K.	WSRC, Principal Scientist	X	X	X
D'Amelio, Joe	WSRC/SWD, Site Project Manager	X	X	X
Dicks, Deneen	PE&CD/P&CT, Technical Support	X		
Fussell, Buddy	NFT/VPM, VPM		X	
Gregory, Clint	FSSD/ALD, HGAS Lab Manager			X
Hawkins, Shane	NFT/SWO, Operator		X	
Jackson, Glen	WSRC-SWE, CTF-Gas Sampling	X	X	X
Kienzle, Stephen	SWD Training, Training Specialist	X	X	X
Kokovich, Mark	SPM/TRU Ops. Manager	X	X	X
Mason, Mike J.	Site Project QA Manager	X		X
Melton, Jessie	WSRC, Chemist	X	X	X
Mentrup, Steve J.	SWE, TRU Technical Advisor	X		
Mobley, James C.	NFT/SWO, VEE		X	
Phillips, Jeannie	Division Records Office	X		

<b>SRS PERSONNEL CONTACTED DURING AUDIT A-02-20</b>				
<b>NAME</b>	<b>TITLE/ORG</b>	<b>PREAUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST AUDIT MEETING</b>
Sessions, Henry T.	WSRC/EES, Sr. Engineer			X
Stotter-Hardy, Shauna	NFT/HSG, Operator		X	
Wilson, Leah	Lead Ops Specialist/Shift Manager, SWO	X	X	X

**Summary Table of Audit Results**

Documents	Concern Classification				QA Evaluation		Technical
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
<b>Activity</b>							
Compositing with present unit	0	0	0	0	A	S	E
New cleaning station	0	0	0	0	A	S	E
New unit at Building 305-A (including compositing)	0	0	0	0	I	I	I
Sea-Land Storage Units	0	0	0	0	I	I	I
NucFil HSG Sampling Port Dart Installation system	0	0	0	0	I	I	I
TOTALS	0	0	0	0	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

## SRS DOCUMENTS LISTING

	<b>Document No.</b>	<b>Document Title</b>
1.	SW18 WP-AP-0003, R4	WIPP Disposal Program Project Level Validation and Verification
2.	SW18 WP-AP-0011, R5	QC/Measurement Control: HGAS Laboratory
3.	SW18 WP-AP-0013, R1	Headspace Gas Analysis Journal
4.	SW18 WP-AP-0015, R4	WIPP Disposal Program Data Generation Level Review for Headspace Gas Analysis
5.	SW18 WP-AP-0020, R3	Headspace Gas Analysis Batch Data Review Reference Tables
6.	SW18 WP-AP-0023, R0	QC/Measurement Control: HGAS Laboratory at 305-A
7.	SW18 WP-AP-0024, R0	Headspace Gas Analysis Journal at 305-A
8.	SW18 WP-AP-0025, R0	Computer Configuration Control: HSGA Laboratory at 305-A
9.	SW18 WP-AP-0026, R0	Headspace Gas Analysis Batch Data Review Reference Tables for 305-A
10.	SW15.7-SOP-HSGA-01, R9	Headspace Gas Analysis Operations
11.	SW15.7-SOP-HSDR-01, R5	Headspace Gas Analysis Data Review
12.	SW15.7-INSP-HSG-01, R6	Gas Analysis System Inspections
13.	SW15.7-INSP-HSG-02, R0	Gas Analysis System Inspections at 305-A
14.	SW15.7-SOP-HSGA-02, R0	Headspace Gas Analysis Operations at 305-A
15.	SW15.7-IMP-HSGAR-02, R0	WIPP Disposal Program Gas Analysis Rounds at 305-A
16.	SW15.7-SPO-HSDR-02, R0	Headspace Gas Analysis Data Review at 305-A
17.	SW15.7-INSP-PDP-02, R3	WIPP Disposal Program Headspace Gas Analysis Performance Demonstration Program (PDP)
18.	SW15.7-SOP-SPI-01, R0, Draft A	Headspace Gas Sampling Port Installation Operations
19.	SW15.7-SOP-SSP-01, R0, Draft B	Headspace Gas Sampling Through a Sample Port
20.	SW15.7-SOP-CCCP-02, R0	Canister Cleaning and Certification in 724-8E
21.	FP-807, R5	Solid Waste Gas Analysis Standards Preparation and Dilution
22.	FP-915, R0	Solid Waste Gas Analysis Standards Preparation with no Dilution
23.	FP-917, R0	Solid Waste Gas Analysis Standards Preparation Certifications