



**Department of Energy**

Carlsbad Field Office  
P. O. Box 3090  
Carlsbad, New Mexico 88221  
December 29, 2000

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Mr. Steve Zappe, Project Leader  
Hazardous & Radioactive Materials Bureau  
New Mexico Environment Department  
2044 A. Galisteo  
Santa Fe, New Mexico 87502-6110

Subject: Transmittal of the Final Audit Report for the Savannah River Site (A-01-01)


Dear Mr. Zappe:

This letter transmits the Final Audit Report for the Savannah River Site as required by Section II.C.2.c of the WIPP Hazardous Waste Facility Permit. The audit was conducted on November 7-16, 2000, and December 18, 2000. Closure of the Hazardous Waste Facility Permit related Corrective Action Report resulting from this audit was completed on December 21, 2000.

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 be 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.

Should you have any questions concerning this audit report, please contact Mr. Samuel Vega, the Carlsbad Field Office Quality Assurance Manager, at (505) 234-7432.

Sincerely,

  
Dr. Inés R. Triay  
Manager

Enclosure

cc w/o enclosure:  
T. Harms, DOE-HQ  
D. Ormand, SRO  
K. Watson, CBFO  
S. Vega, CBFO  
L. Chism, CBFO  
C. Holman, CBFO  
C. Zvonar, CBFO  
J. Plum, CBFO  
M. Italiano, CBFO  
J. Kielsing, NMED

J. Bearzi, NMED  
R. Dinwiddie, NMED  
J. Epstein, WID  
L. Steven, WID

cc w/enclosure:  
W. Most, WID

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

**FINAL AUDIT REPORT**

**OF THE**

**SAVANNAH RIVER SITE (SRS)**

**AIKEN, SOUTH CAROLINA**

**AUDIT NUMBER A-01-01**

**NOVEMBER 7-16, 2000  
and  
DECEMBER 18, 2000**

**FINAL AUDIT REPORT OF WASTE CHARACTERIZATION IN  
ACCORDANCE WITH THE HAZARDOUS WASTE FACILITY PERMIT**



Prepared By: \_\_\_\_\_

Jeffrey D. May  
Audit Team Leader

Date: \_\_\_\_\_

12/29/00

Approved By: \_\_\_\_\_

Samuel A. Vega  
CBFO QA Manager

Date: \_\_\_\_\_

12/29/00

## **1.0 EXECUTIVE SUMMARY**

Carlsbad Field Office (CBFO) Audit A-01-01 was conducted to evaluate the adequacy, implementation, and effectiveness of the Savannah River Site (SRS) transuranic (TRU) waste characterization activities for debris waste relative to the requirements detailed in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP).

The audit was conducted at the SRS facilities and at the CTAC offices in Carlsbad in two phases: phase 1 during November 7-16, 2000, and phase 2 on December 18, 2000. The audit team concluded that the SRS technical and quality assurance (QA) programs, as applicable to the audited activities, met requirements contained in the HWFP. The deficiencies identified in the corrective action report (CAR) discussed below have been corrected. The audit team also concluded that the defined QA and technical processes for the audited activities were being implemented in accordance with the SRS Quality Assurance Project Plan (QAPjP) and related implementing procedures. The audited processes were also found to be effective.

The audit team identified seven HWFP related conditions adverse to quality resulting in the issuance of one CBFO CAR that requires corrective action in the area of Acceptable Knowledge and five isolated deficiencies requiring only remedial corrective actions. The five isolated conditions were Corrected During the Audit (CDA). One Observation was identified, and nine Recommendations are being offered for SRS management's consideration. The CAR and CDAs are described in section 6.0 and the Observations and Recommendations are discussed in section 7.0.

## **2.0 SCOPE AND PURPOSE**

### **2.1 Scope**

The audit team evaluated the adequacy, implementation, and effectiveness of the SRS TRU waste characterization processes for retrievably stored debris waste relative to the requirements contained in the WIPP HWFP, attachments B through B6. Compliance was documented by completing the attachment B6 checklist for the applicable SRS activities.

The following SRS program elements were evaluated in accordance with the HWFP:

#### **Quality**

Nonconformances

Training

Records

## Technical

Acceptable Knowledge (AK)  
Headspace Gas & Gas VOCs Sampling and Analysis  
Real-Time Radiography (RTR)  
Visual Examination (VE)  
Data Generation Level Verification and Validation  
Project Level Verification and Validation  
Waste Certification  
WIPP Waste Information System (WWIS) Data Entry

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, October 27, 1999*

*CAO Quality Assurance Program Document, CAO-94-1012, Revision 3, November 1999*

*WSRC-RP-99-01097, R1, Dated September 5, 2000 "Savannah River Site WIPP Disposal Program Quality Assurance Project Plan"*

*WSRC-RP-99-01119, R0, Dated August 3, 2000 "Savannah River Site WIPP Disposal Program Quality Assurance Program Document"*

*Related SRS technical and quality assurance implementing procedures*

## 2.2 Purpose

Audit A-01-01 was conducted to assess whether SRS's retrievably stored waste characterization activities complied with the WIPP HWFP requirements.

## 3.0 AUDIT TEAM AND OBSERVERS

### AUDITORS/TECHNICAL SPECIALISTS

Sam Vega	QA Manager, CBFO
Jeff May	Audit Team Leader, CTAC
Steve Calvert	Auditor
Wayne Ledford	Auditor
Steve Davis	Auditor
Pete Rodriguez	Auditor
Amy Arceo	Auditor
Jim Schuetz	Auditor
Norm Frank	Auditor

Dee Scott	Auditor
Randy Fitzgerald	Technical Specialist
Dave Camp	Technical Specialist
Alan Williams	Technical Specialist
William Verret	Technical Specialist
Trey Greenwood	Technical Specialist
Tom Ward	Technical Specialist
Patrick Kelly	Technical Specialist

## **OBSERVERS**

Steve Zappe	Observer, NMED
Steve Holmes	Observer, NMED
William Fetner	Observer, NMED
Connie Walker	Observer, Trinity Eng. (NMED)
Bob Thielke	Observer, Techlaw, Inc. (NMED)
Julie Shanahan	Observer, Techlaw, Inc. (NMED)
Patricia Brown Derocher	Observer, Techlaw, Inc. (NMED)
June Dreith	Observer, Techlaw, Inc. (NMED)

## **4.0 AUDIT PARTICIPANTS**

SRS individuals involved in the audit process are identified in attachment 1. A pre-audit meeting for phase 1 was held at the SRS site Building 766H, Room 1003 on November 7, 2000. A daily meeting was held with SRS management and staff to discuss issues and potential deficiencies. The phase 1 audit was concluded with a post-audit meeting in Building 766H, Room 1003 on November 16, 2000.

Phase 2 of the audit was conducted to verify completion of corrective actions resulting from phase 1 of the audit. Phase 2 was held on December 18, 2000 with a meeting between the applicable audit team personnel and SRS representatives at the CTAC offices in Carlsbad. The objective evidence submitted by SRS was sufficient in detail to allow successful verification of the SRS Corrective Action Plan and closure of the CAR without a site visit.

## **5.0 SUMMARY OF AUDIT RESULTS**

### **5.1 Program Adequacy and Implementation**

This audit was performed to assess SRS's ability to characterize waste from Summary Category Group S5000 to the requirements specified in the WIPP Waste Analysis Plan (WAP). The characterization methods assessed were headspace gas sampling, headspace gas analysis, AK, radiography, and VE. Data review, validation, data quality objective (DQO) reconciliation, and the preparation of the Waste Stream Profile Form (WSPF) were also assessed. The processes demonstrated for Summary

Category Group S5000 will also be used to characterize other retrievably stored debris waste streams. Once the SRS processes are approved, those processes can be used to characterize other waste streams in the future. AK, RTR, VE, and headspace gas sampling and analysis are performed in the same manner for all waste streams regardless of the Summary Category Group. While the subject waste stream was retrievably stored debris, SRS will use these procedures to certify and ship all other retrievably stored waste streams once it receives CBFO approval. Newly generated waste streams and waste streams from Summary Category Group S3000 and S4000 will require an additional audit because the requirements specific to these areas were not included in the scope of this audit.

The audit team concluded that the applicable SRS TRU waste characterization activities, as described in the associated SRS implementing procedures, satisfactorily meet the requirements contained in the HWFP. The deficiencies identified in section 6.1 have been corrected. Details of audit activities, including specific objective evidence reviewed, are described below and are documented in the attached B6 checklist. The B6 checklist identifies the SRS program documents and procedures in which the WAP requirements are met. Attachment 3 contains examples of the objective evidence that was reviewed during the audit.

## **5.2 Technical Activities**

Each technical area (characterization activity) audited is discussed in detail in the following sections. The method used to select objective evidence is discussed, the objective evidence that was used to assess compliance with the WAP is cited briefly (and in detail on the checklist), and the result of the assessment is provided.

Objective evidence to evaluate the implementation of the associated characterization activities was selected and reviewed. Batch data reports, sampling records, and training documentation for TRU Waste Characterization Program (TWCP) personnel were included in the evaluation. The audit included direct observation of actual waste characterization activities (such as gas sampling and analysis, RTR, and WWIS data entry). Each characterization process involves:

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

If a question could not be satisfactorily answered, an audit concern was identified. Concerns that were corrected during the audit are discussed in section 6.2. A CAR was prepared to document those items not adequately addressed during the audit. A corrective action report (CAR) allows CBFO to track SRS's efforts to remediate the

deficiency identified in the CAR. CAR 01-003 is described in section 6.1. The WAP-related CAR was satisfactorily closed during subsequent phase 2 corrective action verification activities. Each deficiency CDA and the WAP related CAR are identified on the B6 checklist tables under the corresponding item number.

#### 5.2.1 Table B6-1, General Waste Analysis Plan (WAP) and Project Level Data Validation

The B6-1 checklist addresses program requirements from an overall management perspective and the validation of the data at the site project level. The table documents the controlling procedures implemented by SRS to verify that the waste characterization strategy employed at SRS meets the defining WAP criteria. In addition, Table B6-1 documents the site project level reviews of the data collected as a result of the waste characterization implementing procedures. This audit was performed to assess SRS's ability to characterize Summary Category Group S5000 debris waste streams. Objective evidence was reviewed as part of this assessment and utilized in the completion of this table. The objective evidence included completed batch reports (completed through the SPO review) for RTR, headspace gas, and visual examination. In addition, procedures and objective evidence were reviewed to ensure that SRS could adequately perform data reconciliation and properly prepare a waste stream profile form (WSPF).

Objective evidence was reviewed to make a determination of the adequacy of the SPO verification and validation procedures. Evidence included batch data reports from each of the waste characterization activities. Other objective evidence included an example of the data reconciliation process and an example WSPF. The objective evidence cited in Table B6-1 is included in Attachment 3.

The flow of data from the point of generation to inclusion in the WSPF for each characterization technique was reviewed to ensure that all applicable requirements were captured in the site operating procedures. The material in this section is also addressed in more detail in the following sections, which identify the specific procedures audited and the objective evidence reviewed.

During the audit, SRS demonstrated compliance with the characterization requirements of the WAP through documentation and by performing the characterization activities. The following information was selected by the audit team for evaluation:

- Headspace gas sampling batch data report, 00-HSGS-003. This report contains the information required by the WAP for headspace gas sampling. The actual sampling operation was observed on 11/14/00.
- Headspace gas analytical report, 00-HSGA-003. This report contains the gas analysis information. Actual analytical operations were observed on 11/15/00.

- Radiography batch data report 00-RTR-003. This report contains the results of the radiographic evaluation. Actual RTR operations were observed during the audit on drum number SR610076.
- VE batch data reports 00-VE-016, 00-VE-017, and 00-VE-003. These reports contain the results of the visual examination. VE operations were witnessed on drum number SR234836.
- WSPF SR2001.001.00 and associated data reconciliation information included in waste stream profile package (WSP) SR-T001-221F-HET.

Copies of these items are included in attachment 3.

A draft WSPF and the summarized characterization information related to it were reviewed to establish the objective evidence for reporting waste characterization information to WIPP. The form was completed using information from current characterization processes. SRS was requested to prepare the draft WSPF so that the procedure could be audited (see attachment 3). An actual WSPF will be prepared and submitted to CBFO prior to any shipments. The draft form is an example developed to allow the audit team to assess the process used to prepare the form; actual WSPFs will be reviewed and approved by the CBFO when the waste stream has been fully characterized and SRS is approved to ship waste.

Procedures evaluated during the review of the SPO activities are cited in Attachment 4 of this report.

#### 5.2.2 Table B6-2 Solids and Soils/Gravel Sampling Checklist

No solids or soils/gravel waste streams are currently being processed by SRS. These areas were not audited; therefore, no SRS S3000 or S4000 waste will be accepted for disposal at WIPP until the procedures and processes have been audited and accepted by CBFO and a final audit report for those processes has been approved by NMED.

#### 5.2.3 Table B6-3 Solids and Soil/Gravel Analysis Checklist

No solids or soils/gravel waste streams are currently being addressed by SRS. These areas were not audited; therefore, no SRS S3000 or S4000 waste will be accepted for disposal at WIPP until the procedures and processes have been audited and accepted by CBFO and a final audit report for those processes has been approved by NMED.

#### 5.2.4 Table B6-4 Acceptable Knowledge Checklist

AK and the auditable record were reviewed for a Summary Category Group S5000 retrievably stored debris waste stream. The AK record was reviewed to demonstrate that the required information was present and correctly interpreted. The batch data



reports cited in this report were evaluated to demonstrate confirmation of AK using approved waste characterization activities, to reconcile DQOs, to prepare a draft WSPF, and to transmit data to WIPP using the WWIS.

AK summary report SR-T001-221F-HET Rev. 3 was reviewed. During the review of this package it was determined that the SRS AK program was not being fully implemented as required by the WAP. This determination resulted in CAR 01-003 being issued. The conditions noted in this CAR were subsequently corrected (the correction resulted in a revision to SR-T001-221F-HET Rev. 3; it is now cited as Rev. 4). Additional detail regarding CAR 01-003 is provided in Section 6.1.1 of this report.

Activities reviewed in accordance with the AK checklist are intended to ensure that SRS has an implemented and effective AK process in place to:

- Train data collection personnel
- Assemble those data into a coherent narrative that describes the waste generation process and constituents of the waste
- Segregate the waste into like waste streams
- Provide Resource Conservation and Recovery Act (RCRA) characterization for those waste streams
- Confirm characterizations using testing and sampling and analysis
- Provide an auditable set of records to support the characterization

The following AK procedures were evaluated:

- SW18-WP-AP-002, *WIPP Disposal Program Acceptable Knowledge.*
- SW18-WP-AP-008, *WIPP Disposal Program Waste Certification Statement Preparation.*
- SW18-WP-AP-009, *WIPP Disposal Program Waste Stream Determination and Reporting.*
- SW18-WP-AP-0010, *WIPP Disposal Program Waste Stream Profile Form Preparation and Reconciliation with Data Quality Objectives.*

AK Summary documentation contained in the auditable record and container-specific information were reviewed. Traceability of the AK documentation was accomplished by a review of SR-T001-221F-HET. The summary documents and supporting documentation identify the waste stream and point of generation for the containers. This review resulted in CAR 01-003 (referenced above) being issued to document that the reassignment of the waste matrix codes was not performed as required by the WAP. Subsequently, this information was corrected and verified as part of the CAR closure process.

Several of the references were selected to ensure that they are included in the auditable record and to ascertain if the source documents support AK determinations. These sources include such items as published reports, process flow diagrams,

interviews with site personnel concerning the use of hazardous materials, and reports of previous waste characterization sampling and analysis efforts. The review of these references resulted in a determination that limitations of the AK documentation had not been documented as required by the WAP. This deficiency was documented in part of CAR 01-003.

The AK process was evaluated by reviewing the AK summary, document SR-T001-221F-HET (Rev. 3 and Rev. 4). The auditable record was searched to ensure that the cited references were available and that the reviewer could reach the same hazardous waste determination as presented in the AK summary. Information from the debris waste stream was selected and the AK information was traced from the summary through the AK source document reviews to the original records. The information for containers SR595610, SR235060, and SR234875 was traced to verify the characterization as determined by the AK. The information was available in the record files and supported the AK determination.

The AK process includes provisions to identify and resolve any waste stream information that conflicts with what is expected (confirmation processes). The discrepancy resolution procedure is SW18-WP-AP-002, *WIPP Disposal Program Acceptable Knowledge*.

Additional documentation supporting AK summary documents and AK source document review summaries are contained in attachment 3 to support the entries in Table B6-4.

SRS draft WSPF SR2000.001.00 (contained in waste stream profile package SR-T001-221F-HET) and the information related to it was reviewed as objective evidence of the SRS process for reporting characterization information to WIPP. Procedure SW18-WP-AP-0010, *WIPP Disposal Program Waste Stream Profile Form Preparation and Reconciliation with Data Quality Objectives*, was evaluated during the audit.

The cited procedures are used by SRS to assemble, evaluate, document, and reconcile testing and sampling and analysis results. The procedures were reviewed for adequacy and their implementation was assessed during the audit.

Reports and records used to document the basis of the SRS AK process were evaluated; copies of pages used for objective evidence are included in attachment 3 of this report. The reports were determined to be satisfactory and the QA records were properly maintained. The list of AK documentation reviewed is included in attachment 3.

Upon closure of CAR 01-003, the assessment team concluded that SRS properly confirmed the waste characterization designations during the AK process by using the sampling and analysis data. It was determined that SRS has an adequate process in place to resolve discrepancies and document changes. Waste characterization designations were confirmed by reviewing the batch data reports, which documented

the characterization activities. It was also determined that if it were found that the characterization results do not support the AK waste stream description, a non-conformance report (NCR) would be prepared.

As a result of this audit, it was concluded that SRS is satisfactorily implementing the AK process to delineate, characterize, and confirm the characterization of waste for disposal in accordance with WAP requirements.

#### 5.2.5 B6-5 Headspace Gas Sampling Checklist

Headspace gas sampling operations at SRS were observed during actual collection of samples and the cleaning of Silco® canisters. The following procedures were evaluated:

- SW15.7-SOP-HSGS-01, *Headspace Gas Sampling*.
- SW15.7-SOP-HSGA-01, *Headspace Gas Analysis Operations*.
- SW18-WP-AP-0014, *Data Generation Level Validation and Verification for Headspace Gas Sampling*.
- SW18-WP-AP-0015, *Data Generation Level Validation and Verification for Headspace Gas Analysis*.
- SW15.7-SOP-CCCP-01, *Canister Cleaning and Certification*.
- SP-SW-099, *Collecting Field Reference Standard and Equipment Blank Samples*.
- SP-SW-092, *Collecting Annual Field References Standard and Equipment Blank Samples*.

Audit activities relative to headspace gas sampling included a review of sampling equipment, observing sampling activities, and reviewing available headspace gas sampling batch data reports. Sampling batch data reports 00-HSGS-003 and 00-HSGS-005 were reviewed to evaluate sampling methods against WAP requirements. In addition, the sampling process was observed on 11/14/00. The audit team concluded that SRS is properly implementing the headspace gas sampling procedures and collecting samples into Silco® canisters in accordance with the WAP requirements.

During the evaluation of sampling activities, canister cleaning, leak checking activities, and the implementation of chain of custody activities were also observed and evaluated. Documentation specific to these activities (e.g., chain of custody forms, certification of cleanliness, and field logbooks) was reviewed to ensure that the sampling operations and activities are being properly recorded. It was determined that these activities were conducted in accordance with the WAP requirements.

The assessment of the sampling activities also included the review, and observation, of the SRS processes for the collection of field reference standards and equipment blanks. These samples are collected in accordance with SP-SW-099, *Collecting Field*

*Reference Standard and Equipment Blank Samples and SP-SW-092, Collecting Annual Field References Standard and Equipment Blank Samples.*

After observation and evaluation of the sampling activities sampling batch data reports (00-HSGS-003 and 00-HSGS-005) were reviewed to determine that data associated with sampling activities were properly collected, documented, and validated and verified at the data generation level. The independent technical review, technical supervisor review, and data generation QA officer review were done in accordance with SW18-WP-AP-0014, *Data Generation Level Validation and Verification for Headspace Gas Sampling*.

More detailed information regarding the evaluation of the SRS headspace gas sampling program is contained in Table B6-5 attached to this report.

#### 5.2.6 B6-6 Headspace Gas Analysis Checklist

Headspace gas analysis operations at SRS were observed, including the analysis of headspace gas samples collected into 6L Silco® canisters. The following sampling and analysis procedures were evaluated:

- SW15.7-SOP-HSGS-01, *Headspace Gas Sampling*.
- SW18-WP-AP-0020, *Headspace Gas Analysis Batch Data Review Reference Tables*.
- SW15.7-SOP-HSGA-01, *Headspace Gas Analysis Operations*.
- SW15.7-INSP-PDP-02, *WIPP Disposal Program Headspace Gas Analysis Performance Demonstration Program (PDP)*.
- SW18-WP-AP-0015, *Data Generation Level Validation and Verification for Headspace Gas Analysis*.

Headspace gas analysis activities were audited by observing and evaluating headspace gas analysis activities and reviewing available headspace gas batch data reports. Analytical batch data report 00-HSGA-003 was reviewed to evaluate analysis results in accordance with WAP requirements. Headspace gas analysis operations were observed on 11/14/00 at the SRS analytical facility. Audited activities consisted of observing the processing of the headspace gas sample from the 6L Silco® into the GC/MS system.

Documentation specific to these activities (e.g., calibration records, maintenance logbooks, and instrument logbooks) were reviewed to ensure that laboratory operations were in accordance with quality assurance requirements specified in the WAP. Documentation reviewed is included in the batch data reports that are contained in Attachment 3.

The Table B6-6 headspace gas analysis checklist was completed by assessing the implementation of the sampling and analysis procedures. Analysis operations were

observed and records from these activities were reviewed. Specific information regarding the observations conducted and the records that were reviewed is described in the objective evidence column of Table B6-6.

Equipment is controlled to ensure that it does not contaminate the sample. Sample integrity is protected using procedure SW15.7-SOP-HSGA-01, *Headspace Gas Analysis Operations*, SW15.7-SOP-HSGS-01, *Headspace Gas Sampling*, and SW15.7-SOP-CCCP-01, *Canister Cleaning and Certification*. SOP-CCCP-01 describes the requirements for the use of chain of custody forms. Copies of the chain of custody (COC) forms and the sample canister information documents are included in the batch data reports.

Analysis of samples is controlled by procedure SW15.7-SOP-HSGA-01, *Headspace Gas Analysis Operations*. Review of the results to ensure that they meet program QAOs is controlled by SW18-WP-AP-0015, *Data Generation Level Validation and Verification for Headspace Gas Analysis* and SW18-WP-AP-003, *WIPP Disposal Program Project Level Validation and Verification*. Headspace gas analysis batch data report 00-HSGA-003 was reviewed to ensure that both data generation level and project level validation and verification activities were properly performed.

The SRS headspace gas analysis process is concluded to be adequate, implemented, and effective in accordance with the WAP requirements.

#### 5.2.7 Table B6-7 Radiography Checklist

SRS radiography operations are performed using a real-time system, which meets the system specifications identified in the WAP. SRS has controls to allow the operator to: enhance the image quality of the radiograph; provide narration with the video; rotate the drum as it is imaged; enlarge the image; and pan up and down the container. These systems allow site personnel to view drums while recording the examination on an audio/video tape.

The Table B6-7, Radiography Checklist, was completed by assessing operating procedures:

- SW18-WP-AP-0017, *WIPP Disposal Program Data Generation Level Review for RTR/X-Ray*.
- SW15.7-SOP-RTR-01, *Real-Time Radiography (RTR)/X-Ray Operations*.

The audit team activities included: RTR operations were observed; videotapes were reviewed; the RTR of drum number SR610076 was observed; and the documentation resulting from these activities was evaluated. The following batch data reports were reviewed and are included in attachment 3.

- 00-RTR-001

- 00-RTR-002
- 00-RTR-003

The batch data reports were reviewed to evaluate SRS's compliance with SW18-WP-AP-0017, *WIPP Disposal Program Data Generation Level Review for RTR/X-Ray*. This procedure controls the data generation level independent technical review, the technical supervisor review, and the QA Officer review. The batch data report reviews conducted to the requirements of this procedure were found to be in compliance with the WAP requirements for data generation level review.

Training course material and the RTR test drums (no specific drum numbers) were reviewed to ensure they are in accordance with WAP requirements.

Radiography equipment maintenance and daily checks were evaluated in accordance with WAP requirements and the RTR procedures and were concluded to be properly implemented. Radiographic results are being properly reported on standard forms and reviewed, as required by the WAP. Copies of the forms are included in the batch data reports listed in attachment 3.

The SRS radiographic process is concluded to be adequately described in the procedures and the process is satisfactorily implemented and effective.

#### 5.2.8 Table B6-8 Visual Examination Checklist

The SRS VE process was evaluated to determine the effectiveness of VE as a confirmation of the RTR process and as a characterization method that can be used in lieu of RTR. VE performed as a confirmation of RTR or in lieu of RTR is recorded on audio/video tape and the results are documented on standard forms in accordance with the following procedures:

- SW18-WP-AP-0016, *WIPP Disposal Program Data Generation Level Review for Visual Examination*.
- SW15.7-SOP-TVEF-01, *TRU Visual Examination Facility (TVEF) Operations*.
- SW15.7-SOP-CONT-01, *WIPP Waste Container Selection, Preparation, and Deficiency Operations*.

SRS VE activities were evaluated by observing actual examinations, reviewing videotapes, and evaluating VE batch data reports. The visual examination of drum number SR234836 was observed by the audit team. The batch data reports reviewed were:

- 00-VE-002
- 00-VE-009
- 00-VE-012

These batch data reports are included in attachment 3.

VE operations at the TRU Visual Examination Facility were observed in accordance with SW15.7-SOP-TVEF-01. Data generated from these VE activities are compiled and reviewed in accordance with SW18-WP-AP-0016. The batch data reports were reviewed to ensure that the information collected using the VE procedure meet the WAP requirements. In addition, the batch data reports were reviewed to verify that the independent technical review, the technical specialist review, and the QA Officer review were conducted as defined in procedure SW18-WP-AP-0016. Procedures were concluded to be adequate, implemented, and effective.

The audit team evaluated SW15.7-SOP-CONT-01 used to randomly select drums to confirm radiography results. It was confirmed that the selection of the drums for VE was random and the drums were selected from the SRS available drum population in accordance with the WAP requirements.

The training course content for operators and VE experts was reviewed to verify that all WAP requirements were included. SRS VE training requirements are contained in SW15.7-SOP-TVEF-01. Training files were reviewed for VE experts and operators to verify that individuals responsible for performing the visual examination of drums have been properly trained and qualified.

Additional information regarding the VE operations at SRS is contained in Table B6-8. The audit team concluded that the SRS procedures for performing visual examination are adequate and the process is implemented and effective.

#### 5.2.9 Table B6-9 Visual Examination Technique Checklist

The visual examination technique used to characterize waste at the time of packaging or re-packaging is currently not being employed by SRS. This technique was not audited. Waste requiring characterization using the VE technique will not be accepted for disposal at WIPP until the procedures and processes have been audited and accepted by CBFO and a final audit report for those processes has been approved by NMED.

#### 5.2.10 Table B6-10 Quality Assurance Checklist

The audit team reviewed the SRS procedures in place that are used to ensure that the QA requirements of the WAP are being met. In addition, the audit team verified the effectiveness of the QA program in meeting these requirements. Procedures reviewed in this area include:

1Q, QAP 1-2	<i>Stop Work</i>
1Q, QAP 2-2	<i>Personnel Training and Qualification</i>
1Q, QAP 15-1	<i>Control of Nonconforming Items</i>
1Q, QAP 15-2	<i>Control of Nonconforming Activities</i>

1Q, QAP 17-1	<i>Quality Assurance Records</i>
SW-QI-1171	<i>Records Management</i>
SWD-SWT-98-0056	<i>SRS WIPP Disposal Program Operations Training Program Description</i>
SWD-SWT-98-0058	<i>SRS WIPP Disposal Program Technical and Support Staff Training Program Description</i>
SW18-WP-AP-0007	<i>WIPP Records Management</i>
WSRC 1B, 3.31	<i>Records Management</i>

QA program controls for the reporting and disposition of nonconformances were reviewed. A sample of NCRs that had been written at the site were selected and reviewed to ensure that the controlling procedures had been followed. As of the date of the audit no NCRs had been written that were required to be reported to CBFO. NCRs selected by the audit team were determined to be in accordance with 1Q, QAP 15.1 and 1Q, QAP 15-2 requirements. The control of nonconformance procedures were determined to be adequate, implemented, and effective.

The audit team evaluated the SRS training program definition and implementation. The specific training required for waste characterization activities is detailed in the checklists specific to each area. The audit team also reviewed the overall training program, including the training of SRS personnel to the program documents (e.g., the WAP, Waste Acceptance Criteria, Quality Assurance Program Document, etc.) Random selection of the training records of SRS personnel indicated that the training program was adequate, implemented, and effective.

The SRS records management program was evaluated by the audit team. Specific programmatic and technical procedures identify QA records. The records management process was evaluated to ensure that they are being properly maintained. In addition, the Retention Schedule Matrix (identified in Section 3.0 of SW18-WP-AP-0007) was reviewed to ensure that the appropriate records were identified and maintained as a part of the WIPP records. It was determined that the SRS records management process is adequate, implemented, and effective.

Overall, the SRS QA program was determined to be adequate, implemented, and effective. Additional information and more detail regarding the QA program are described in Table B6-10.

## **6.0 SUMMARY OF DEFICIENCIES**

### **6.1 Corrective Action Reports**

Five CARs were initiated during phase 1 of the audit. Four of the CARs (01-002, 01-004, 01-005, & 01-006) were not WAP related and are not included in this report.



#### 6.1.1 CBFO CAR 01-003

The following issue was related to the AK process and documented on CBFO CAR 01-003.

SRS's acceptable knowledge program is not being implemented as required by the WAP and the SRS internal procedure, WP-AP-0002, in the following areas:

- Reassignment of waste matrix codes has not been performed as required by the WAP. Waste matrix code S5440 has been applied to containers that are designated as S5300, S5420, and S5190 for waste stream SR-T001-221F-HET.
- The limitations of the AK documentation has not been documented as required by the WAP and WP-AP-0002, Paragraph 4.4-2.

Completion of corrective action for CAR 01-003 was verified during phase 2 of the audit. Additional information used in closing this CAR is included in attachment 2.

#### **6.2 Deficiencies Corrected During the Audit**

Five WAP related CDAs were identified by the audit team. These conditions were corrected and verified during phase 1 of the audit. No additional CDAs resulted from phase 2 evaluations. Additional CDA information is contained in attachment 2.

1. The VE facility's camera system did not have the capability to record the entire VE process (i.e., initial lid removal, and verification of % drum utilization).
2. It was noted that procedures WP-AP-0015, R0 and WP-AP-0018, R0 were not reviewed by the Solid Waste Environmental Compliance Group prior to issuance as required by the "Required Procedure Reviewers Listing".
3. The following issues were noted during review of various qualification cards and the Qualification Standard and Training Program Description.
  - A) Need to add TRU Waste VE OJT (ZET10B08) to the Visual Exam Cognizant Technical Function Qualification Card.
  - B) Need to add Data Generation Level Review, Validation, Verification classroom training (ZETITB03) to the Data Management Coordination Qualification Card.
  - C) Need to reflect Computer-Based Training on the Qualification Standard and Training Program Description for NDA Standards Preparation Team position.
4. A current lead auditor was certified as a lead auditor on 5/22/92 by WSRC using a lead auditor certification from Gilbert Commonwealth. The lead auditor certification from Gilbert is not legible and therefore does not meet the requirements for a quality record and therefore cannot be used as a basis for his current certification.

5. The Statistician Data Evaluation Narrative is missing the following information:

- WSPF Number
- Waste Stream Lot Number
- Non detectable measurements that were omitted
- Verification that the data set used agrees with the container ID numbers
- The UCL<sub>90</sub> Evaluation form was not used

## **7.0 SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS**

### **7.1 Observations**

An Observation documents marginally acceptable conditions that, if not controlled, might later escalate into a deficiency. The following is the one WAP related Observation identified during the audit:

1. The procedures currently being implemented by SRS are waste stream specific. The procedures have been written for waste stream SR-T001-221F-HET only. This will require SRS to revise their procedures each time a different waste stream is characterized. This is not only inefficient but could result in procedural problems or inconsistencies.

### **7.2 Recommendations**

The following are the WAP related Recommendations provided to SRS management during the audit:

1. During manufacture of drums, RCRA constituents may be used during the rinsing process. These RCRA constituents may remain in sufficient quantity that their presence is detected during characterization activities. The audit team recommends that SRS consider requesting information from the manufacturer concerning solvents used in the manufacturing process.
2. SRS indicates that the TWBIR definition of waste stream was followed, rather than the waste stream definition within the WAP. SRS should include support information within the AK Summary Document regarding how the waste stream was defined and modify the AK Procedure WP-AP-0002 to include the definition of waste stream, ensuring that the definition of waste stream within the WAP is reflected.
3. Container Discrepancy Forms are used to identify discrepant AK data, but criteria for management of discrepant information (i.e., resolution of discrepant AK information) is not discussed. Specifically, criteria for data management when a waste matrix code assignment is in error, when hazardous waste code reassignments are made, when AK data discrepancies are identified, etc. should be

included in WP-AP-0002 or other applicable procedures appropriately referenced by WP-AP-0002. Inclusion of these criteria are important because while facility representatives apparently understood when containers must be administratively segregated into individual waste streams, they also need to understand how discrepant information should be assessed.

4. With respect to Waste Stream SR-T001-221F-HET, individual detailed AK was available on a drum by drum basis. However, the AK Summary Report did not reflect this information directly or through direct reference. Instead the AK Summary Report only references a single container's TRU Waste Package Data as an example (Reference 76). SRS should include all drum-specific AK information in a single reference, and add this reference to the AK Summary.
5. Procedure WP-AP-0002 does not include some of the detailed items described in the QAPjP. Unless the QAPjP is referenced significantly in WP-AP-0002 or significant QAPjP information is directly included in WP-AP-0002, the required WAP information and assessments could be overlooked. Examples of data that should be included in WP-AP-0002 include but are not limited to:
  - Requirements for waste reevaluation (i.e., in the same manner as a newly generated waste) if AK data are insufficient.
  - How changes to WMCs, waste stream assignment, and EPA hazardous waste composition are documented when AK is revised based on addition of new AK information or confirmation results.
  - Specific hazardous waste determination requirements should be included that state how hazardous waste codes should be assigned (e.g., listed and TC wastes and how discrepant information are handled, the criteria for assigning codes, providing justification if codes are not assigned, etc.).
  - Improvement of the AK confirmation procedure to ensure that drum by drum RTR comparisons are made and that the confirmation process includes direction with regard to how discrepancies shall be handled with respect to waste segregation and reassignment to new waste streams.
6. WP-AP-0002 and the QAPjP imply that acquisition of supplemental information is not mandatory. However, acquisition of supplemental information is required in the WAP, although the exact supplemental information that must be obtained is not specified. This requirement is to ensure that a thorough analysis of available information is obtained to support the AK waste characterization. WP-AP-0002 should be revised to include the requirement for acquisition of supplemental information.
7. The AK Summary Report should be improved by:

- Including more detailed references in specific sections/discussions instead of a single blanket reference or range of references that apply to a large quantity of information. As written, it is difficult to determine how specific references apply to AK statements, making data traceability difficult.
  - Clarifying that the statement “this waste stream” on page 35 does not infer that the non-mixed waste stream 221F-HET includes the hazardous waste/constituents that would be present in metals, paints, etc.
  - Clarifying that “certifiable waste” has specific criteria represented in procedures and including these in the AK Summary Report.
  - Page 36 inferred that the non-mixed waste stream 221F-HET included hazardous waste (e.g., leaded aprons). Recommend clarifying waste segregation procedures/activities and specifically identifying what is/is not expected in this waste.
  - The radiological characterization section should include the more specific information that is presented in the associated AK references. This specific information includes any Container Examination and Evaluation Program (CEEP) results, the summary information from TRU waste package data, the isotopic information from the Radioisotope Characterization of FB Line (Reference 74), and the detailed isotopic distribution information regarding the “some fuel grade material” that may be present.
8. The RTR narrative should provide a verbal description to augment the visual presentation of the tape, including as much as possible, the details apparent on the tape. The narrative could include a summary, expressing not only those items clearly identified as important but also the other items that are present. A summary of the contents could be included at the end, referencing the presence/absence of specific prohibited items and other items important to RTR.
9. The following recommendations are provided for improvement of the SRS WWIS program through revision of procedure SW-15.7-SOP-WWIS-01:
- Provide the direction to record QA review comments and error notifications in the comments area of Attachment 1 (Performance Section Documentation form)
  - Identify a contact to communicate SRS concerns to WIPP such as the revision of pull-down menu lists
  - Provide the direction for entering all radionuclides including unexpected constituents not found on pull-down menus

- Add reference notes to the instructional steps, leading the reader to specific forms where the data are referenced

## **8.0 LIST OF ATTACHMENTS**

Attachment 1:	Personnel Contacted During the Audit
Attachment 2:	Corrective Action Supporting Documentation
Attachment 3:	Objective Evidence
Attachment 4:	SRS Implementing Procedures Listing

## PERSONNEL CONTACTED DURING THE AUDIT

PERSONNEL CONTACTED				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Allen, Chris	SRTC/EES/IES, NDE Specialist		X	
Ancel, David	NFT/SWO, Operator		X	
Anderson, Roy	Manager Metrology	X		
Barlow, John	NFT/SWO, Operator		X	
Blackwell, Denise	Records	X		X
Brighttharp, Pat	Transportation HMT, HMTR HMT Specialist		X	
Blankenhorn, Jim	SWO, Facility Manager	X	X	X
Brown, Kenny	WG/NDE, RTR		X	
Buggy, JJ	President-WSRC	X		X
Burrus, George	WSRC/PMMD/PQE, SR.QA Engineer		X	
Chambers, Tony	SWFS/Rigging, Rigger		X	
Cheeks, Ken	TSD/AL, Manger/Chemist HSGA Lab	X	X	
Clark, Pat	WSRC Systems Engineer	X	X	X
Clary, Melissa	CTF-Visual Exam	X	X	X
Coleman, Hilda	WSRC/SWE, TRU Waste Eng./NDA,RTR	X	X	X
Corbett, Joseph	Production Operator/ SWMP/SWD		X	
Corder, Bill	Engr. Assoc.	X		X
Crapse, Bert	DOE-SR Engineer	X		X

PERSONNEL CONTACTED				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Crow, George	SRTC/EES/IES, NDE Specialist		X	
Culligan, Brian	STSD/AL, Chemist	X	X	X
Cummings, Charles	SWD Training & Procedures, Trng. Scheduler & Inst.		X	
D'Amelio, Joe	Site Project Manager	X	X	X
Devare, Chris	SWFS/Rigging, Rigger		X	
Dicks, Deneen	Clerk	X		
Douse, Laura	SWD/SWMD, Ops		X	
Drake, Lynn	WSRC/QSD/PQA, Sr. QA Engineer		X	
Ergle, Ronald	SWO, Operator		X	
Frasier, Keehna	Engr. Assoc.	X		X
Fussell, George	NFT SWO, VEE		X	
Geary, L. C.	WSRC P&CT/SPS Technical Advisor	X	X	
Gentile, Mike	WSRC P&CT/SPS, Manager – Software	X	X	X
Gibbs, Ann	WSRC/SWE, Sr. Fellow		X	
Good, R. Wayne	SRTC/EES, NDE Supervisor	X	X	X
Gregg, Gleason	SWD, QA CQF	X	X	X
Griffin, Pamela	SWE, CTF AK and NDA	X	X	X
Heeman, Thomas	DOE AM ES&T	X		X

PERSONNEL CONTACTED				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Henderson, Helen	Sr. Trng. Spec-Div. Programs	X		X
Hill-Foster, Thelma	TSD/AL, Chemist		X	
Howard, Ralph	SWO/SWMD, Ops		X	
Huges, Teresa	Admin Secretary	X		
Hunt, Paul	SWD Deputy Ops. Manager	X		X
Jackson, Glen	SWM/SWF, CTF-Gas Sampling	X	X	X
Johnson, William	WSRC, Data Management, Records	X	X	X
Josey, Lee	WSRC/PMMD, Div. Procurement Rep.		X	
Kelly, John	SWE, NDA Analyst		X	
Kelly, W. (Sam)	VP & GM	X		X
Kienzle, Stephen	SWD Training, Instructor	X	X	X
Kokovich, Mark	TRU Ops. Manager	X	X	X
Lambert, Debbie	TRU Waste Supervisor/ SWMD/SWO	X	X	X
Larrabee, Ed	WSRC/SWQA, CQF	X	X	X
Leschak, William	Quality Assurance	X	X	X
Loibl, Marc	Manager, NDE Systems	X		X
Lynn Kevin	SWO, E Area Work Control Manager		X	
Lunsford, G. F.	WSRC/SWD, AK CTF/WCO	X	X	X
Maier, Jim	SWO, Transportation Lead & M&TE Coordinator	X	X	X



PERSONNEL CONTACTED				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Mason, Mike	Site Project QA Manager	X	X	X
Mason, Owen	TSD/ALD, Technical Specialist		X	
McLane, T. L.	A&ID/ PMMD, Strategic Sourcing Manager		X	
Meers, Ben	RTR	X	X	X
Melton, Jessie	TSD/HL, Chemist	X	X	
Mentrup, Steve	SWO, TRU Waste Eng. Lead	X	X	X
Morgan, Richard	WGI/NDE, RTR		X	
Ormond, Dale	DOE-SR Senior TRU Program Manager	X		X
Owens, Pat	MSD Site Training Records		X	
Padgett, Jimmy	WSRC, Procedures		X	
Patel, Babu	Technical Specialist	X		X
Peek, John	SWD Ops, Operator Support		X	
Phillips, Jeannie	Division Records Office	X	X	X
Rapp, M. E.	SWFS R/HAE, Crane Operator		X	
Rahn, Terry	SWD T&P, Training Lead	X	X	X
Renew, Rick	SWQA, QA Inspector		X	
Richardson, A. L.	SWD T&P Manager	X	X	X
Riddle, FJ (Joe)	Manager Systems Security & Process	X	X	X
Rippy, Crystal	Engineer Assoc.	X		X

PERSONNEL CONTACTED				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Rodney, Dane	SWO, E Area Lead Work planner		X	
Rovansew, John	QA Audits	X		
Salemi, Mike	NFT/SWSO, Operator		X	
Sauls, Virgil	Director, WOD, DOE-SR	X		
Shaffer, John	Env. Scientist	X		X
Shearer, Harriette	WSRC Records Management, Records Coordinator	X	X	X
Sherritt, Shelly	Manager, Operations Eng.	X		X
Shine, Eugene	NSRC/SRTC/Environmental Science & Technology, Principle Scientist		X	
Shipes, Janice	SW/Ops, Operator		X	
Stone, Keith	Deputy Site Manager	X		X
Swale, Dave	SWD Ops. Manager	X		X
Thompson, Wayne	SRTC-EES, Specialist		X	
Tinsley, Barbara	SWMD/SWO, Production Operator		X	
Tunno, Greg	Mgr. S&H Ops.	X		X
Tuttel, Dave	TSD/QSD/RI, Manager Receiving Inspection		X	
Tussy, James	P&CT Principle Engineer	X	X	X
Wall, Nancy	ESH& QA SH&O, RCO Inspector		X	
Wilson, Leah	Shift Manager/	X	X	X

PERSONNEL CONTACTED				
NAME	TITLE/ORG	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
	SWMD/SWO			
Wooldridge, F. D.	SWO Ops. Support	X	X	X
Zimmerman, Gary	SWD Training, Instructor		X	

### Personnel Contacted During the Audit by Area

Nonconformances	G. Gregg
Training	S. Kienzle G. Zimmermann A. Richardson T. Rahn C. Cummings P. Owens
Records	J. Phillips J. Padgett
Acceptable Knowledge	G. Lunsford P. Griffin H. Coleman P. Clarke A. Gibbs
Headspace Gas & Gas VOCs Sampling and Analysis	J. Corbett D. Lambert L. Wilson N. Wall B. Tinsley O. Mason T. Hill-Foster K. Cheeks J. Melton G. Jackson B. Culligan W. Good W. Thompson
Real-Time Radiography	B. Meers K. Brown H. Coleman R. Renew R. Morgan
Visual Examination	M. Clary G. Fussell J. Peek J. Barlow N. Wall M. Salemi D. Ancel J. Blankenhorn M. Kokovich
WIPP Waste Information System (WWIS Data Entry)	W. Johnson G. Lunsford W. Leschak
Waste Certification/Project Level & Data Generation Level Data Validation & Verification	E. Shine G. Lunsford S. Mentrup B. Culligan

## SRS IMPLEMENTING PROCEDURES LISTING

### Program Documents

Document No.	Document Title
WSRC-RP-99-01097	"Savannah River Site WIPP Disposal Program Quality Assurance Project Plan"
WSRC-RP-99-01119	"Savannah River Site WIPP Disposal Program Quality Assurance Program Document"

### Implementing Procedures

#### Technical Related Procedures

Document No.	Document Title
SP-SW-099	Collecting Field Reference Standard and Equipment Blank Samples
SP-SW-095	Headspace Gas Sampling of Empty Drums
SP-SW-092	Collecting Annual Field References Standard and Equipment Blank Samples
SW18-WP-AP-0020	Headspace Gas Analysis Batch Data Review Reference Tables
SW18-WP-AP-0017	WIPP Disposal Program Data Generation Level Review for RTR/X-Ray
SW18-WP-AP-0016	WIPP Disposal Program Data Generation Level Review for Visual Examination
SW18-WP-AP-0015	Data Generation Level Validation and Verification for Headspace Gas Analysis
SW18-WP-AP-0014	Data Generation Level Validation and Verification for Headspace Gas Sampling
SW18-WP-AP-0013	Headspace Gas Analysis Journal
SW18-WP-AP-0012	TRUPACT II Transportation Arrangements
SW18-WP-AP-0011	QC/Measurement Control: HGAS Laboratory
SW18-WP-AP-0010	WIPP Disposal Program Waste Stream Profile Form Preparation and Reconciliation with Data Quality Objectives
SW18-WP-AP-0009	WIPP Disposal Program Waste Stream Determination and Reporting
SW18-WP-AP-0008	WIPP Disposal Program Waste Certification Statement Preparation
SW18-WP-AP-0003	WIPP Disposal Program Project Level Validation and Verification
SW18-WP-AP-0002	WIPP Disposal Program Acceptable Knowledge
SW15.7-SOP-CONT-01	WIPP Waste Container Selection, Preparation, and Deficiency Operations
SW15.7-SOP HSGS-01	Headspace Gas Sampling
SW15.7-SOP HSGA-01	Headspace Gas Analysis Operations
SW15.7-SOP HSDR-01	Headspace Gas Analysis Data Review
SW15.7-INSP-HSG-01	Gas Analysis Systems Inspection
SW5.7-INSP-PDP-02	WIPP Disposal Program Headspace Gas Analysis Performance Demonstration Program (PDP)
SW15.7-IMP-HSGAR-01	WIPP Disposal Program Gas Analysis Rounds
SW15.7-SOP-CCCP-01	Canister Cleaning and Certification
SW15.7-SOP-HGEC-01	Headspace Gas Equipment Certification
SW15.7-SOP-WWIS-01	Waste to WIPP Information System (WWIS) Data Entry Operations
SW15.7-SOP-RTR-01	Real Time Radiography (RTR)/X-Ray Operations
SW15.7-SOP-TVEF-01	TVEF Operations
SW15.7-SOP-PYLD-01	TRUPACT-II Payload Package Creation
SW15.7-INSP-NDE-01	Non-Destructive Examination Test Drum Assembly
SW15.7-INSP-NDE-02	WIPP Disposal Program Radiography Test Drum Observation

QA Related Procedures	
Document No.	Document Title
1Q, QAP 1-2	Stop Work
1Q, QAP 2-2	Personnel Training and Qualification
1Q, QAP 15-1	Control of Nonconforming Items
1Q, QAP 15-2	Control of Nonconforming Activities
1Q, QAP 17-1	Quality Assurance Records
SW-QI-1171	Records Management
SWD-SWT-98-0056	SRS WIPP Disposal Program Operations Training Program Description
SWD-SWT-98-0058	SRS WIPP Disposal Program Technical and Support Staff Training Program Description
SW18-WP-AP-0007	WIPP Records Management
WSRC 1B, Procedure 3.31	Records Management



**SRS (A-01-01)**  
**Table B6-1**  
**General Waste Analysis Plan (WAP) and Project Level Data Review Checklist**

TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>		Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
WASTE ACCEPTANCE CONTROL						
1	Are procedures in place to ensure that the generator/storage site uses a Waste Stream Profile Form (WSPF) which includes, at a minimum, the information indicated on the attached WSPF found in Figure B-1? A WSPF need not be submitted for subsequent waste stream lots unless warranted by the characterization information. (Sections B-1a, B-1d, B3-12b(1))	SW18-WP-AP-0010, R1	Y	WSP Package SR-T001-221F-HET ( <b>TAB-GEN1</b> ) – draft WSPF SR 2000.001.00	Y	The draft Waste Stream Profile Form (WSPF) is contained in the waste stream profile (WSP) package SR-T001-221F-HET. The draft WSPF is for demonstration purposes.
2	Are procedures in place to ensure that WSPFs are provided to the Permittees for each waste stream prior to acceptance for disposal at the WIPP? (Section B-1d)	SW18-WP-AP-0010, R1, Par. 2.1.2	Y	N/A	N/A	A WSPF has not been submitted.
3	Are procedures in place to ensure that a new WSPF is submitted to the Permittees if continued characterization reveals discrepancies that identify different hazardous waste codes or indicates the waste belongs in a different waste stream? (Section B-1d)	SW18-WP-AP-0010, R1, Par 4.1.1	Y	N/A	N/A	SRS has not completed the characterization of a waste stream.
GENERAL SAMPLING AND ANALYTICAL REQUIREMENTS						
4	Are procedures in place to ensure that compounds not on the list of target analytes are reported as tentatively identified compounds (TICs) according to SW-846 TIC identification guidance and that the TICs will be added to the target headspace gas analyte list if they appear in the 20.4.1.200 NMAC (incorporating 40 CFR Part 261) Appendix VIII list and if they are detected in 25% of the samples from a given waste stream? (Section B-3a(1), B-3d, B3-1)	SW18-WP-AP-0009, R1, Par 1.1, 4.1.22, & Att 4	Y	WSP Package SR-T001-221F-HET ( <b>TAB-GEN1</b> )  Waste Stream Lot Tentatively Identified Compounds Form signed by the HSG cognizant technical function on 11/6/00	Y	See CDA # 9 (TAB-CDA9)  One compound was identified in 46% of the samples (2-Methyl, 2-Propanol). This compound is not on the Appendix VIII compound list.
5	Are procedures in place to ensure that a randomly selected set of samples will be collected through core sampling or other EPA approved sampling from the population of waste containers for homogeneous and soil/gravel waste streams? Are procedures in place to ensure that a sufficient number of samples are collected to evaluate the toxicity characteristic of a waste stream at a 90 percent upper confidence limit as specified in Attachment B2? (Section B-3a(2))	N/A	N/A	N/A	N/A	Audit A-01-01 is limited to S5000 waste. Scope does not include homogeneous solids.



	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
6	<p>Are procedures in place to ensure that the following characterization activities shall occur for newly generated wastes:</p> <p>Acceptable knowledge for all wastes, with confirmatory:</p> <p>A. Visual examination during packaging (using the VE technique) for all waste containers with second operator providing additional verification (Section B-3d(1))</p> <p>B. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(1))</p> <p>C. Total VOCs, SVOCs, and metals analyses for a selected number of homogeneous solids and soil/gravel waste containers for control charting purposes (annually thereafter), as specified in Attachment B2 (Section B-3d(1)(a))</p> <p>D. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)</p>	N/A	N/A	N/A	N/A	Newly generated wastes are not within the scope of the SRS program.
7	<p>Are procedures in place to ensure that the following characterization activities shall occur for retrievably stored wastes:</p> <p>Acceptable knowledge for all wastes, with confirmatory:</p> <p>A. Visual examination or radiography for all waste containers (Section B-3d(2), B4-3d)</p> <p>B. Confirmatory visual examination of a statistically determined number of waste containers as specified in Attachment B2 (when radiography is performed) (Section B-3d(2))</p> <p>C. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(2))</p> <p>D. Total VOCs, SVOCs, and metals analyses for a statistically selected number of homogeneous solids and soil/gravel waste</p>	<p>SW18-WP-AP-0002, R4</p> <p>A. SW15.7-SOP-RTR-01, R8</p> <p>B. SW15.7-SOP-TVEF-01, R3</p> <p>C. SW15.7-SOP-HSGS-01, R4; SW15.7-SOP-HSGA-01, R5</p> <p>D. N/A</p>	<p>Y</p> <p>A. Y</p> <p>B. Y</p> <p>C. Y</p> <p>D. N/A</p>	<p>WSP Package SR-T001-221F-HET (TAB-GEN1)</p> <p>A. Batch Data Reports: 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)</p> <p>B. Batch Data Reports: 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)</p> <p>C. Batch Data Reports: 00-HSGS-003 (TAB-GEN8) 00-HSGA-003 (TAB-GEN9)</p> <p>D. N/A</p>	<p>Y</p> <p>A. Y</p> <p>B. Y</p> <p>C. Y</p> <p>D. N/A</p>	<p>A. See Table B6-7 for more information.</p> <p>D. Total metals are not applicable to</p>

	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	containers as specified in Attachment B2 (containers opened for sampling may be used to fulfill the visual examination requirements) (Section B-3d(2))  E. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)	E. SW15.7-SOP-HSGA-01, Att 2; SW18-WP-AP-0009, Par 1.1, 4.1.22, & Att 4	E. Y	E. WSP Package SR-T001-221F-HET (TAB-GEN1)	E. Y	SRS.
8	Are procedures in place to ensure that the following characterization activities shall occur for repackaged waste:  Acceptable knowledge, with confirmatory:  A. Visual examination during repackaging (using the VE technique) for all waste containers with second operator providing additional verification (Section B-3d(1))  B. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(1))  C. Total VOCs, SVOCs, and metals analyses following either the retrievably stored or newly generated waste characterization process, whichever results in greater sampling requirements (Section B-3d(2))  D. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)	N/A	N/A	N/A	N/A	Currently SRS does not repackage waste.
SITE PROJECT OFFICE VERIFICATION, VALIDATION, DOCUMENTATION, AND QUALITY ASSURANCE						
9	Are procedures in place to ensure that the following data quality objectives are met:  A. Use headspace gas sampling and analysis to identify and quantify VOCs to ensure compliance with the environmental performance standards of 20.4.1.500 NMAC and to confirm hazardous waste identification by acceptable knowledge  B. Perform totals analyses of homogeneous solids and soil/gravel wastes to compare UCL <sub>90</sub> values for the mean measured contaminant concentrations in a waste stream with specified toxicity characteristic levels in 20.4.1.200 NMAC to determine if the waste is hazardous and to confirm hazardous waste characterization by	A. SW15.7-SOP-HSGS-01, R4; SW15.7-SOP-HSGA-01, R5; SW18-WP-AP-0010, R1, Par 4.2.2  B. C. N/A	A. Y	A. Batch Data Reports: 00-HSGS-003 (TAB-GEN8) 00-HSGA-003 (TAB-GEN9)  B.-C. N/A	A. Y	B. - C. SRS is not currently characterizing homogeneous waste.

	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>acceptable knowledge</p> <p>C. Perform totals analyses of homogeneous solids and soil/gravel wastes to report the average concentration of hazardous constituents in a waste stream, as specified in 20.4.1.200 NMAC, with a 90 percent confidence interval, with all averages greater than the PRQL considered a detection and subsequent assignment, as applicable, of a hazardous waste code, and to confirm hazardous waste characterization by acceptable knowledge</p> <p>D. Use radiography or visual examination to verify physical waste form, identify prohibited items, verify determination of sampling and analytical requirements, and to confirm waste stream delineation by acceptable knowledge</p> <p>E. Use visual examination as a process check of radiography (Section B-4a(1))</p>	<p>D. SW15.7-SOP-RTR-01, R8</p> <p>E. SW15.7-SOP-TVEF- 01, R3</p>	<p>D. Y</p> <p>E. Y</p>	<p>D. Batch Data Reports: 00-RTR-003 (TAB-GEN4) 00-VE-003 (TAB-GEN7)</p> <p>E. Batch Data Reports: 00-RTR-003 (TAB-GEN4) 00-VE-003 (TAB-GEN7)</p>	<p>D, Y</p> <p>E. Y</p>	
10	Are procedures in place to ensure that the generator/storage site performs data validation and verification of waste characterization data for each waste container? (Section B-4, B3-10)	SW18-WP-AP-0003, R1	Y	<p>Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)</p> <p><u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)</p> <p><u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)</p> <p><u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)</p>	Y	
11	Are procedures in place to ensure that the generator/storage site has a pre-approved format for reporting waste characterization data? (Section B-4a(4))	SW15.7-SOP-RTR-01, R8, Att1; SW15.7-SOP-TVEF-	Y	Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-GEN2)	Y	The format is approved during the CBFO procedure adequacy review. The Batch Data Reports show that

	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
		01, R3 Att 4; SOP-HSGS-01, R4, Att1; SOP-HSGA-01, R5, Appx 5		00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)  <u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)  <u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)  <u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)		SRS uses the approved formats.
12	Are procedures in place to ensure that the generator/storage site prepares analytical, testing, and sampling Batch Data Reports to meet the requirements of their own site-specific QAPJP and/or SOPs? (Section B-4a(4))	SW15.7-SOP-TVEF-01, R3, Att 4; SOP-HSGS-01, R4, Att1; SOP-HSGA-01, R5, Appx 5; SW15.7-SOP-RTR-01, RR, Att 1	Y	Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)  <u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)  <u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)  <u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)	Y	
13	Are procedures in place to ensure that 100 percent of all Batch Data Reports receive a Site Project Manager signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following:  A. Independent technical reviews, technical supervisory reviews, and Site Project QA Officer reviews have been performed and documented through completed review checklists and signatures  B. Data have been verified to have complete data generation level and Site Project QA Officer reviews and meet all applicable QAOs of this WAP  C. The batch data review checklists are complete (Section B3-10b(2))	SW18-WP-AP-0003, R1, Att 2	Y	A. - C. Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)  <u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)  <u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)  <u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)	A.- C. Y	

	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
14	At the project level, are procedures in place to ensure that 100 percent of all Batch Data Reports shall have a Site Project QA Officer signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following, as applicable:  A. Sampling batch field QC checks were properly performed and meet established QAOs and data usability criteria  B. Testing batch QC checks were properly performed. Radiography data are complete and acceptable based on evidence of videotape review of one waste container per testing batch, at a minimum  C. Analytical batch and on-line QC checks were properly performed and meet established QAOs and data usability criteria  D. Batch Data Reports are properly reported (i.e., correct units and with appropriate qualifier flags)  E. Proper procedures were used to ensure that representative headspace gas and core samples were collected (Section B3-10b(1))	SW18-WP-AP-0003, R1, Att 3	Y	Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)  <u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)  <u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)  <u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)	Y	
15	Are procedures in place to ensure that a repeat of the data review process at the data generation level will be performed on a minimum of one randomly chosen waste container every quarter to determine if the verification and validation is performed according to documented procedures? (Section B3-10b)	SW18-WP-AP-0003, R1, Par 4.2.1.1	Y	N/A	N/A	SRS has not been characterizing waste for a full quarter as of this audit.
16	Are procedures in place and are checklists available to prepare a Site Project QA Officer Summary and a Data Validation Summary (the summaries may be in the same document)? The Site Project QA Officer Summary should include a validation checklist for each Batch Data Report that is of sufficient detail to document all aspects of a Batch Data Report that could affect data quality. The Data Validation Summary should confirm that on a waste container basis, as evidenced by Batch Data Report reviews, all data were validated according to site QAPjP requirements, identify each Batch Data Report reviewed, and indicate that all data are acceptable. (Section B3-10b(3))	SW18-WP-AP-0003, R1, Att 1	Y	WSP Package SR-T001-221F-HET (TAB-GEN1)	Y	
DATA TRANSMITTAL						
17	Are procedures in place to ensure that the generator/storage site reports summarized waste characterization information on a waste stream basis (Characterization Information Summary) and transmits the summarized data by hard copy or electronically to the Permittees when requested?	SW18-WP-AP-0010, R1, Par 4.2.1	Y	WSP Package SR-T001-221F-HET (TAB-GEN1)	Y	Summarized information is included in the WSP Package.

	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	(Section B3-12b, B3-12b(2))					
18	Are procedures in place to ensure that the generator/storage site's Batch Data Reports are reviewed at the project level and include the applicable information found in Tables B3-11, B3-12, B3-13? (Section B3-10)	SW18-WP-AP-0003, R1, Att 2 & Att 3	Y	Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)  <u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)  <u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)  <u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)	Y	
RECORDS AND RECORD MANAGEMENT						
19	Are procedures in place to ensure that the generator/storage site's hard copy and/or electronic data reports follow the Permittees' format requirements? (Section B-4a(4), B-4a(6), B3-10)	SW18-WP-AP-0010, R1	Y	Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)  <u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)  <u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)  <u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)	Y	Procedures and report formats are approved during CBFO adequacy review.
20	Are procedures in place to ensure that hard copy or electronic Waste Stream Profile Forms and Characterization Information Summaries will include the following:  A. Waste Stream Profile Form:  1. Generator/storage site name  2. Generator/storage site EPA ID	A. SW18-WP-AP-0010, R1, Att1	A. Y	A. WSP Package SR-T001-221F-HET (TAB-GEN1) – draft WSPF SR2000.001.00	A. Y	A. The draft WSPF SR2000.001.00 is included in WSP package SR-T001-221F-HET.

**SRS (A-01-01)**

**PERMIT ATTACHMENT B6**  
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	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
21	Data Reports contain copies of non-conformance reports? (Tables B3-11 through B3-13)	Att 4, 5, & 6; SW18-WP-AP-0015, R0, Att 4, 5, & 6; SW18-WP-AP-0016, R0, Att 4, 5, & 6; SW18-WP-AP-0017, R0, Att 4, 5, & 6; SW18-WP-AP-0003, R0, Att 1		<u>RTR</u> 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)  <u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)  <u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)  <u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)	Y	NCRs applicable to a particular batch data report (if any) are identified on the table of contents for the batch data report.
22	Are procedures in place to ensure that project level reports are compiled into Characterization Information Summaries? (Section B3-12b)	SW18-WP-AP-0003, R1, Att 5	Y	WSP Package SR-T001-221F-HET (TAB-GEN1)	Y	
23	Are procedures in place to ensure that the generator/storage site uses approved formats for Batch Data Reports as provided in site-specific documentation? (Section B3-12a)	SW15.7-SOP-RTR-01, R8, Att 1; SW15.7-SOP-TVEF-01, R3, Att 4; SOP-HSGS-01, R4, Att 1; SOP-HSGA-01, R5, Appx 5	Y	Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)  <u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)  <u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)  <u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)	Y	Procedures and report format are approved during the CBFO adequacy review.
24	Are procedures in place to ensure that the Site Project Manager completes a WSPF based on the Batch Data Reports and submits it to the Permittees along with the Characterization Information Summary, which includes reconciliation with data quality objectives (DQOs) once a waste stream is fully characterized? (Section B-4a(6), B3-12b)	SW18-WP-AP-0010, R1, Par 4.2.1 & Att 3	Y	WSP Package, SR-T001-221F-HET (TAB-GEN1) – draft WSPF SR 2000.001.00	Y	The WSP Package includes the draft WSPF SR 2000.001.00
25	Are procedures in place to ensure that the contract laboratories forward testing, sampling, and analytical records along with Batch Data Reports to the site project office for inclusion in the site project files? (Section B-4a(7))	N/A	N/A	N/A	N/A	SRS does not currently use contract laboratories.

SHIPMENT

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	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
26	Are procedures in place to ensure that the generator/storage site accurately completes an EPA Hazardous Waste Manifest prior to shipping the waste to WIPP that contains the following information:  A. Generator site name and EPA ID  B. Generator site contact name and phone number  C. Quantity of waste  D. List of hazardous waste codes in shipment  E. Listing of all container IDs  F. Signature of authorized generator representative (Section B-4b(2))	SW18-WP-AP-0012, R0, Appx 2; Uniform hazardous Waste Manifest, Att 2; Land Disposal Notification Form	Y	Uniform Hazardous Waste Manifest and Land Disposal Notification Form (TAB-GEN16)	Y	These Forms were examples made up by SRS for a demonstration Payload Assembly and demonstration loading of the TRUPACT-II.
27	Are procedures in place to ensure that the generator/storage site accurately completes the following container-specific information:  A. Waste stream identification number  B. List of hazardous waste codes per container  C. Certification data  D. Shipping data (Section B-4b(2))	WP-AP-0012, R0; SW18-WP-AP-0008, R1, Att 1 & 2; SW15.7-SOP-PYLD-01	Y	Attachment 1 and 2 of WP-AP-0008; PATCD and PCTCD for Demonstration Payload (TAB-GEN17)	Y	Example Forms for demonstration Payload Assembly for TRUPACT-II Loading,
GENERAL SOLIDS SAMPLING REQUIREMENTS						
28	Are procedures documented that adequately ensure that:  Newly generated mixed waste streams of homogeneous solids and soil/gravel are randomly sampled for total PCBs, VOCs, SVOCs, and metals analyses a minimum of once per year after an initial 10 sample set is collected? (Section B-3d(1)(a)) <i>(Note: only newly generated waste streams associated with waste streams identified as within established administrative controls, or repackaged waste, as appropriate, may be sampled the minimum of once per year)</i>	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.
29	Are procedures in place to ensure that the number of newly generated soil/gravel waste containers to be randomly sampled will be determined using the procedure specified in Section B-3a(2) (i.e., performed using the same procedures used to select samples for retrievably stored homogeneous solid and soil/gravel wastes)? (Section B-3d(1)(b))	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.

	<b>TABLE B6-1</b> <b>General Waste Analysis Plan (WAP) and Project Level Data Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
30	Are procedures in place to ensure that the following sample collection requirements for retrievably stored waste streams are met:  A. The number of random samples collected for characterization of retrievably stored homogeneous solid and soil/gravel waste is performed by developing preliminary mean and variance estimates for each analyte to define the number of required random samples; and the sample selection process is adequately documented  B. A minimum of 5 waste containers in a retrievably stored waste stream are sampled to establish the preliminary estimate for the number of samples  C. Based on the number of samples required by the preliminary estimate, the subsequent sample means and deviations for each analyte are evaluated against the regulatory threshold for each constituent to determine if additional samples shall be collected  D. Samples (the number of which is statistically determined) are collected to verify that a TRU mixed waste is below the regulatory threshold, where the regulatory threshold is the toxicity limit for toxicity characteristic wastes and the PRQL for listed waste constituents  E. Samples from preliminary estimates counted as required samples were randomly selected and were collected, analyzed, and validated using representative methods (Section B2-2a)	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.
<b>SOLIDS SAMPLING PROCEDURES</b>						
31	Are procedures in place to ensure that equipment blanks are collected and evaluated to verify that liner material, retainers, or other sampling equipment in contact with the sample do not contain analytes of concern? (Section B1-2b(2))	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.
<b>SAMPLE COLLECTION</b>						
32	Are procedures in place to ensure that samples of homogeneous solids and soil/gravel for SVOCs, metals, and PCBs are collected randomly either from the same sub-sample locations and in the same manner as the sample collected for VOC analysis, or are collected by splitting or compositing the representative subsection of the core? The representative subsections are chosen by randomly selecting a location along the portion of the core (i.e., core length). (Section B1-2a(2))	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.
<b>QUALITY CONTROL SAMPLE COLLECTION</b>						

TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>		Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
33	Are procedures in place to ensure that sampling precision will be determined through the collection and sampling of field duplicate samples for core samples and through the collection of co-located samples for samples collected using alternate methods at the frequency of once per sample batch (up to 20 samples excluding QC samples) collected within 14 days of the first sample, or once per week during sampling operations, whichever is more frequent? (Section B1-2b(1), B3-3)  Are procedures in place to ensure that acceptance criteria for sample precision are established through an F-Test after 25 - 30 co-located pairs have been analyzed to establish a control chart? (Section B3-3)	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.
34	Are procedures in place to ensure that equipment blanks are analyzed for VOCs, SVOCs, and metals and that the entire equipment batch will be re-cleaned and re-sampled if any analytes are detected at levels greater than 3 times the MDL or PRDL? (Section B1-2b(2))	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.
35	Are procedures in place to ensure that disposable sampling equipment is certified as clean prior to use? (Section B1-2b(2))	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.
QUALITY ASSURANCE OBJECTIVES						
36	Are procedures in place to ensure that the variance measured between co-located core samples is compared to the variance within the waste stream using the F-test and is reported by the Site Project QA Officer on a routine basis? (Section B3-3)	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.
37	Are procedures in place to ensure that sampling accuracy as a result of equipment blank evaluation is determined through the collection of equipment blanks at a frequency of once per equipment cleaning batch? (Section B1-2b(2), B3-3)	N/A	N/A	N/A	N/A	Solids are not currently being characterized at SRS and, therefore, are not part of the scope of A-01-01.
CRITERIA FOR ASSEMBLING ACCEPTABLE KNOWLEDGE RECORD DELINEATING THE WASTE STREAM						
38	Does the generator site have written methodologies for determining the mean concentration of solvent VOCs detected by either headspace gas analysis or homogeneous waste sampling for each waste stream or waste stream lot, and are all data used in the determination, including data qualified with 'U' or 'J' flags ('U' flags designated as one half the MDL and 'J' flags designated as less than the PRQL but greater than the MDL)? (Section B4-3d)	SW18-WP-AP-0009, R1, Par 1.1 & 4.1	Y	WSP Package SR-T001-221F-HET (TAB-GEN1); Batch Report - 00-HSGA-003 (TAB-GEN9)	Y	
39	Do procedures ensure that spent solvent assignments are made by using the UCL <sub>90</sub> (of mean concentration) and comparing this with the PRQLs? If the UCL <sub>90</sub> exceeds the PRQL, is acceptable knowledge reevaluated and a	SW18-WP-AP-0009, R1, Att 2; SW18-WP-AP-002,	Y	WSP Package SR-T001-221F-HET (TAB-GEN1); Batch Report - 00-HSGA-003	Y	

	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	new waste stream designated, or is the current waste stream description modified to include the hazardous constituent? (Section B4-3d)	R4. Appx (all)		(TAB-GEN9)		
40	Does the site have written procedures for situations where concentrations of some VOCs are orders of magnitude higher than other target analytes? In these cases, elevated MDLs may be generated, and those constituents with an elevated MDL but 'U' designation will not be used in median calculations. (Section B4-3d)	SW18-WP-AP-0009, R1. Par 4.1.1; SW18-WP-AP-0010, R1. Att 3	Y	WSP Package SR-T001-221F-HET (TAB-GEN1); Batch Report – 00-HSGA-003 (TAB-GEN9)		
QUALITY CONTROL SAMPLE COLLECTION						
41	Do procedures adequately assign the Site Project QA Officer with the responsibility of monitoring field QC results and initiating the nonconformance report process in the event the following acceptance criteria are not met or sample collection frequencies are not met: (Section B1-1b)  A. Field and equipment blanks shall be less than or equal to 3 times the method detection limits specified in Table B3-2. Field and equipment blank results determined by FTIRS shall be less than the PRQL specified in Table B3-2 (Section B1-1b(1), B1-1b(2))  B. Field reference standards shall have a recovery of between 70 and 130% (Table B1-3, Section B1-1b(3))  C. Field duplicates shall have an RPD less than or equal to 25 (Table B1-3, Section B1-1b(4))	WSRC-RP-99-01119, R0. Par 1.5; SW18-WP-AP-0003, R1. Att 3	Y	Batch Data Reports: 00-HSGS-003 (TAB-GEN8) 00-HSGA-003 (TAB-GEN9)	Y	
42	Are procedures in place to ensure that field reference standards meet the following criteria:  A. Field reference standards shall contain a minimum of 6 analytes listed in Table B3-2 at concentrations within a range of 10 and 100 ppmv and greater than the MDL for each compound  B. Field reference standards shall be traceable to a nationally recognized standard (e.g., NIST), if available  C. If commercial gases are used, they shall be accompanied by a Certificate of Analysis from the manufacturer and all field reference standards are traceable to certificates  D. Commercial gases are not used past the manufacturer-specified shelf life	A.-C. SW15.7-SOP-HGEC-01, R0, Par 2   D. SW15.7-SOP-HGEC-01, R0, Par 2.0.1; SW15-SOP-HSDR-01, R2, Par 2.02	A.-C. Y   D. Y	A.-E. Batch Data Reports: 00-HSGS-003 (TAB-GEN8) 00-HSGA-003 (TAB-GEN9)  Reviewed WSRC-T2-2000-00265 documenting FRS preparation.  Reviewed certification of analysis for gasses used.	A.-E. Y	

	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	E. Field reference samples are submitted blind to the laboratory at a frequency of one per sampling batch (Note: Field reference standard collection may be discontinued for direct canister method if QAO accuracy objectives are met) (Section B1-1b(3))	E. SW15.7-SOP-HSGS-01, R4, Appx 1	E. Y			
<b>CHARACTERIZATION AND SYSTEM REQUIREMENTS</b>						
43	Do procedures or other supporting documentation ensure that radiography and/or VE results are compared with waste stream descriptions as per Section B-3c?  If discrepancies are noted, will a new waste stream be identified? (Section B-3c)	SW15.7-SOP-RTR-01, R8, Par 4.2, Att 3	Y	Batch Data Reports: 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)	Y	See CAR-01-003 (TAB-CAR1)
<b>QUALITY ASSURANCE</b>						
44	Is the Site Project QA Officer responsible for monitoring the quality of the radiography data and calling for corrective action, when necessary? (Section B1-3b(2))	SW18-WP-AP-0003, R1, Att 1	Y	Memo from M. Mason 11/6/00 to WIPP Records (TAB-GEN10)	Y	Memo is RTR/VE comparison report.
45	Do procedures ensure that the Waste Matrix Code and waste material parameter weights are verified through a comparison of radiography and visual examination results? (Section B1-3b(3))	SW18-WP-AP-0003, R1, Att 1	Y	Memo from J. Mason 11/6/00 to WIPP Records (TAB-GEN10)	Y	Memo is RTR/VE comparison report.
<b>DATA VALIDATION, REVIEW, VERIFICATION, AND REPORTING</b>						
46	Do procedures ensure that all applicable project-level signatory releases and DQOs (Section B3-11) as specified in the WAP are performed? (Section B3-11a)	SW18-WP-AP-0003, R1, Att 1 & 2 SW18-WP-AP-0010, R1, Att 3	Y	Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3) 00-RTR-003 (TAB-GEN4)  <u>VE</u> 00-VE-016 (TAB-GEN5) 00-VE-017 (TAB-GEN6) 00-VE-003 (TAB-GEN7)  <u>H-Gas Sampling</u> 00-HSGS-003 (TAB-GEN8)  <u>H-Gas Analysis</u> 00-HSGA-003 (TAB-GEN9)	Y	
47	At the project level, do procedures require the Site Project QA Officer to certify that the radiography data are complete and acceptable based on the videotape review of at least one waste container per testing batch or	SW18-WP-AP-0003, R1, Att 1	Y	Batch Data Reports: 00-RTR-001 (TAB-GEN2) 00-RTR-002 (TAB-GEN3)	Y	

	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	daily, whichever is less frequent? (Section B1-3b(2), B3-10b(1))			00-RTR-003 (TAB-GEN4)		
<b>CONFIRMATION OF RADIOGRAPHIC RESULTS</b>						
48	As a QC check on radiography, do procedures or other documentation require that the site open and visually examine a statistical portion of the certified waste containers? (Section B-3c, B1-3b(3), B2-1)	SW15.7-SOP-TVEF-01, R3; SW18-WP-AP-0009, R1, Par 4.3	Y Y	Memo from M. Mason 11/3/00 to J. D'Amelio. (TAB-GEN11)	Y Y	By procedure SRS will VE 1 <sup>st</sup> 50 drums. (Memo for documentation purposes only)
49	Do site procedures ensure that the site use the data obtained from the visual examination to determine the percentage of miscertified waste containers for each Summary Category Group as required in Section B2-1? (Section B2-1)	SW15.7-SOP-TVEF-01, R3, Att 5	Y	Batch Data Reports: 00-VE-003 (TAB-GEN7) 00-VE-009 (TAB-GEN12) 00-VE-012 (TAB-GEN13)  Memo from M. Mason 11/3/00 to J. D'Amelio. (TAB-GEN11)	Y Y	At this time SRS by procedure VEs all drums undergoing RTR until a lot of 50 is completed and a miscertification rate can be established. Memo for documentation purposes only.
50	Do site procedures require that the site initially use a miscertification rate of 11% to calculate the number of waste containers that must be visually examined until a site-specific miscertification rate has been established? (Section B2-1)	WSRC-RP-99-01097, R1, § B2-1; SW18-WP-AP-0009, R1, Par 4.2	Y	Memo from M. Mason 11/3/00 to J. D'Amelio. (TAB-GEN11)	Y	At this time SRS by procedure VEs all drums undergoing RTR until a lot of 50 is completed and a miscertification rate can be established. Memo for documentation purposes only.
51	Do site procedures require that the site-specific miscertification rate be applied initially to each Summary Category Group? Is a Summary Category Group-specific miscertification rate determined after 6 months or 50% of the Summary Category Group has undergone radiographic characterization? Is the entire Summary Category Group subject to the reevaluated Summary Category Group-specific miscertification rate? (Section B2-1)	SW18-WP-AP-0009, R1, Par 4.4	Y	Memo from M. Mason 11/3/00 to J. D'Amelio. (TAB-GEN11)	Y	At this time SRS by procedure VEs all drums undergoing RTR until a lot of 50 is completed and a miscertification rate can be established. Memo for documentation purposes only.
52	Do site procedures require that the site-specific miscertification rate be reassessed annually by calculating a drum-weighted average of all historic Summary Category Group-specific miscertification rates? Do procedures ensure that sites use a miscertification rate of 1% for any site-specific or Summary Category Group-specific miscertification rate calculated to be less than 1%? (Section B2-1)	SW18-WP-AP-0009, R1, Par 4.5	Y	Memo from M. Mason 11/3/00 to J. D'Amelio. (TAB-GEN11)	Y	At this time SRS by procedure VEs all drums undergoing RTR until a lot of 50 is completed and a miscertification rate can be established. Memo for documentation purposes only.
53	Do procedures ensure that the annual number of waste containers per Summary Category Group undergoing characterization meet the requirements of Table B2-1? (Section B2-1)	SW18-WP-AP-0009, R1, Appx 1	Y	Memo from M. Mason 11/3/00 to J. D'Amelio. (TAB-GEN11); Memo from G. Lunsford to J. D'Amelio, 11/4/00 (TAB-GEN14) Memo from G. Lunsford to J. D'Amelio, 11/6/00 (TAB-GEN15)	Y	At this time SRS by procedure VEs all drums undergoing RTR until a lot of 50 is completed and a miscertification rate can be established. Memo for documentation purposes only.

	TABLE B6-1 General Waste Analysis Plan (WAP) and Project Level Data Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
54	Do procedures ensure that the facility use the hypergeometric distribution for the UCL <sub>90</sub> calculation? (Section B2-1)	WSRC-RP-99-01097, R1, Par B2-1	Y	WSP Package – SR-T001-221F-HET (TAB-GEN1)	Y	
55	Do procedures ensure that the results of the visual examination are forwarded to the radiography facility? (Section B1-3b(3))	SW18-WP-AP-0003, R1, Att 1	Y	Memo from M. Mason 11/6/00 to WIPP Records (TAB-GEN10)	Y	Memo is RTR/VE comparison report . This memo was cc'd to B. Meers the SRS RTR lead.
DATA TRANSMITTAL						
56	Are procedures in place to ensure that the generator/storage site inputs the data into the WWIS manually or electronically, in the exact format required by the database? (Section B-4a(6), B-4b(1)(i))	SW15.7-SOP-WWIS-01, R2, Par 4.1, 4.2, 4.3 & 4.4	Y	Observed demonstration of WWIS input by SRS.	Y	SRS has not begun to transmit data via WWIS at the time of audit A-01-01.
57	Are procedures in place to ensure that all of the data presented on Table B-8 of the Permit is transmitted to the WWIS? (Table B-8, B-4b(1)(i))	SW15.7-SOP-WWIS-01, R2, Appx 1	Y	Observed demonstration of WWIS input by SRS.	Y	SRS has not begun to transmit data via WWIS at the time of audit A-01-01.
58	Do procedures ensure that data for each container are transmitted to the WIPP via the WWIS? (Section B-4a(6))	SW15.7-SOP-WWIS-01, R2, Par 4.1 & 4.2	Y	Observed demonstration of WWIS input by SRS.	Y	SRS has not begun to transmit data via WWIS at the time of audit A-01-01.

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to determine whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

**Table B6-2**  
**Solids and Soil/Gravel Sampling and Data Generation Level Review Checklist**

**Solids and Soil/Gravel is not applicable to SRS Audit A-01-01**



**Table B6-3**

**Solids and Soil/Gravel Analysis and Data Generation Level Review Checklist**

**Solids and Soil/Gravel Analysis is not applicable to SRS Audit A-01-01**

**SRS (A-01-01)**  
**Table B6-4**  
**Acceptable Knowledge (AK) Checklist**

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
WASTE STREAM IDENTIFICATION						
1	Does the generator/storage site define "waste stream" as waste material generated from a single process or activity that is similar in material, physical form, and hazardous constituents? (Waste may be generated as either process or process batch waste streams.) (Section B-Introduction)	WP-AP-0002 R4, Par 2.0 (3)	Y	Review of AK Summary Report for SR-T001-221F-HET, S5, (TAB-AK1)	Y	
2	Are procedures in place to ensure that the generator/storage site assigns one of the Summary Category Groups (S3000-homogeneous solids, S4000-soil/gravel, S5000-debris waste) to each waste stream? (Section B-Introduction, Section B-1b)	WP-AP-0002 R4, Par 4.4 (1)	Y	Review of AK Summary Report for SR-T001-221F-HET, S2, (TAB-AK1)	Y	
3	Are procedures in place to ensure that the generator/storage site assigns Waste Matrix Code Groups (e.g., solidified inorganics, solidified organics, salt waste, soils, combustible waste, filters, graphite, heterogeneous debris waste, inorganic nonmetal, lead/cadmium metal waste, uncategorized metal) to each waste stream? (Section B-Introduction, )	WP-AP-0002 R4, Par 2.0 (1), 4.4 (1)	Y	Review of AK Summary Report for SR-T001-221F-HET, S2, (TAB-AK1);	Y	Four waste matrix codes (WMCs) were identified, however, the summary shows only one (5440). See CAR-01-003
4	Are procedures in place to ensure that the generator/storage site provides a Waste Stream Profile Form for each waste stream? (Section B -1d)	WP-AP-0002 R4, Par 4.1; WP-AP-0010, R1, Att 1	Y	Review of draft WSPF SR2000.001.00 (TAB-AK12)	Y	
5	Are procedures in place to ensure that the generator/storage site divides waste streams into waste stream lots if all of the waste within a waste stream is not available for sampling and analysis at one time? If so, is the division of waste streams into waste stream lots based on staging, transportation, and handling issues? (Section B-1a)	WP-AP-0010 R1, Par 2.1.1, 4.1	Y	Review of Procedure WSRC-TR-94-0288	Y	
6	Are procedures in place to ensure that the generator/storage site assigns USEPA hazardous waste codes associated with the waste? If so, do these assigned USEPA hazardous waste codes correspond to the permitted USEPA hazardous waste codes in the Permittees' RCRA Part A Permit Application (Permit Attachment O)? Are there any assigned USEPA hazardous waste codes that are not permitted USEPA hazardous waste codes on the Part A? If so, did the generator/storage site reject the waste for shipment to and disposal at WIPP? Did the generator site assign a state hazardous waste code? If so, is it assigned to waste that is permitted at WIPP? (Section B-1b)	WP-AP-0002 4, Par 4.4 (1); SW18-WP-AP-0010 R1, Par 4.2.1; SW18-WP-AP-0008, R1	Y	N/A	N/A	All waste in this category is non-hazardous. See Review of AK Summary Report for SR-T001-221F-HET, S22.0 (TAB-AK1)

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
7	Do site documents ensure that Summary Category Groups are defined as follows:  A. S3000- Homogeneous solids or solid process residues, excluding soils, that do not meet NMED criteria for classification as debris and are at least 50 percent by volume solid process residues or comprise the majority of the waste stream  B. S4000- Waste streams that are at least 50 percent by volume soil/gravel or comprise the majority of the waste stream  C. S5000- Waste streams that are at least 50 percent volume materials that meet the NMED criteria for debris or comprise the majority matrix of materials. The criteria for debris are solid materials intended for disposal that exceed 2.36 inch particle size and is a manufactured object, plant or animal matter, or natural geologic material. Particles smaller than 2.36 inches in size may be considered debris if the debris is a manufactured object and if it is not a particle of S3000 or S4000 material. (Section B-Introduction)	WP-AP-0002 R4, Par 4.4 (note), Appx 3; WSRC-RP-99-01097	Y	Review of AK Summary Report for SR-T001-221F-HET, S22.0 & S5.5.1, (TAB-AK1)	Y	S3000 and S4000 waste were not within the scope of this audit.
8	Does the generator/storage facility have procedures in place to ensure that the following waste analysis parameters will be characterized:  A. Confirmation of physical form and exclusion of prohibited items  B. Toxicity characteristic contaminants listed in 20.4.1.200 NMAC  C. F-listed and P-listed solvents or wastes (F001, F002, F003, F004, F005, F006, F007, F009, P015) found in 20.4.1.200 NMAC  D. Hazardous constituents as included in 20.4.1.200 NMAC and other hazardous constituents identified through AK (Section B-2)	A. WP-AP-0002 R4, Par 4.3(6) & 4.4(1,3)  B. WP-AP-0009 R1  C. WP-AP-0002 R4, Par 4.4.4.8  D. SW15.7-SOP-HSGA-01 R5; WSRC-RP-99-01097	A. Y  B. Y  C. Y  D. Y	A.-D, Review of AK Summary Report for SR-T001-221F-HET, S25.5.1.2, (TAB-AK1)	A.-D. Y	The waste stream is non-hazardous, and does not contain toxicity characteristics, hazardous constituents, or F listed solvents as defined in 20.4.1.200 NMAC.
9	Are procedures in place to ensure that waste streams identified to contain incompatible materials or materials incompatible with waste containers cannot be shipped unless treated to remove the incompatibility? (Section B-1c)	WP-AP-0002 R4, Par 4.3(6), 4.4(3); WSRC-RP-99-01097	Y	Review of AK Summary Report for SR-T001-221F-HET, S25.5.1.2, (TAB-AK1)	Y	

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
10	Are procedures in place to ensure that the generator/storage site uses acceptable knowledge, headspace gas sampling and analysis, radiography (and/or visual examination), and homogeneous waste sampling and analysis as specified in Table B-6? (Section B-3)	WP-AP-0002 R4, Par 4.6; WSRC-RP-99-01097	Y	Review of TRU AK Waste Data Packages for containers: SR234875, (TAB-AK3) SR235060, (TAB-AK4) SR595610, (TAB-AK5)	Y	AK data for containers 235060, 595610 & 234875 were examined for HSG, VE, RTR and NDA. The waste stream is heterogeneous.
<b>GENERAL SAMPLING AND ANALYTICAL REQUIREMENTS</b>						
11	Are procedures in place to ensure that acceptable knowledge is used in waste characterization activities to delineate TRU waste streams, to assess whether TRU debris waste exhibits a toxicity characteristic, and to assess whether TRU mixed wastes are listed? (Section B-3b)	WP-AP-0002 R4, Par 4.4; WSRC-RP-99-01097	Y	Review of AK Summary Report for SR-T001-221F-HET, S25.5, (TAB-AK1)	Y	The waste is non-toxic and non-hazardous.
12	Are procedures in place to ensure that the following characterization activities shall occur for newly generated wastes:  Acceptable knowledge for all wastes, with confirmatory:  A. Visual examination during packaging (using the VE technique) for all waste containers with second operator providing additional verification (Section B-3d(1))  B. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(1))  C. Total VOCs, SVOCs, and metals analyses for a selected number of homogeneous solids and soil/gravel waste containers for control charting purposes (annually thereafter), as specified in Attachment B2 (Section B-3d(1)(a))  D. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)	WSRC-RP-99-01097; WP-AP-0002 R4, Par 4.3(2)	N/A	N/A	N/A	Newly generated waste were not within the scope of this audit.

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
13	<p>Are procedures in place to ensure that the following characterization activities shall occur for retrievably stored wastes:</p> <p>Acceptable knowledge for all wastes, with confirmatory:</p> <p>A. Visual examination or radiography for all waste containers (Section B-3d(2), B4-3d)</p> <p>B. Confirmatory visual examination of a statistically determined number of waste containers as specified in Attachment B2 (when radiography is performed) (Section B-3d(2))</p> <p>C. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(2))</p> <p>D. Total VOCs, SVOCs, and metals analyses for a statistically selected number of homogeneous solids and soil/gravel waste containers as specified in Attachment B2 (containers opened for sampling may be used to fulfill the visual examination requirements) (Section B-3d(2))</p> <p>E. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)</p>	<p>A.-E. WF-AP-0002 R4, Par 4.6; WF-AP-0009 R1, Par 4.1 (22-26); SW15.7-SOP-HSGA-01 R5, Par 1.2 &amp; Appx 2</p>	<p>A.-E. Y</p>	<p>A. Review of Batch Data Report: 00-RTR-003, (TAB-AK13)</p> <p>B. Review of Batch Data Report: 00-VE-003, (TAB-AK14) 00-VE-016, (TAB-AK15) 00-VE-015, (TAB-AK16) 00-VE-021, (TAB-AK17)</p> <p>C. Review of Batch Data Report: 00-HSGS-003, (TAB-AK18)</p> <p>D. N/A</p> <p>E. Review of draft WSPF SR2000.001.00 (TAB-AK12),</p>	<p>A. Y</p> <p>B. Y</p> <p>C. Y</p> <p>D. N/A</p> <p>E. Y</p>	<p>D. Waste stream is heterogeneous. SRS is not currently characterizing homogeneous solids.</p> <p>E. Sample Waste Stream Profile Package prepared.</p>

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
14	<p>Are procedures in place to ensure that the following characterization activities shall occur for repackaged waste:</p> <p>Acceptable knowledge, with confirmatory:</p> <p>A. Visual examination during repackaging (using the VE technique) for all waste containers with second operator providing additional verification (Section B-3d(1))</p> <p>B. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(1))</p> <p>C. Total VOCs, SVOCs, and metals analyses following either the retrievably stored or newly generated waste characterization process, whichever results in greater sampling requirements (Section B-3d(2))</p> <p>D. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)</p>	WSRC-RP-99-01097	N/A	N/A	N/A	Repackaged waste was not within the scope of this audit.
<b>DATA GENERATION, VERIFICATION, VALIDATION, DOCUMENTATION, AND QUALITY ASSURANCE</b>						
15	<p>Are procedures in place to ensure that the following data quality objectives are met:</p> <p>A. Use headspace gas sampling and analysis to identify and quantify VOCs to ensure compliance with the environmental performance standards of 20.4.1.500 NMAC and to confirm hazardous waste identification by acceptable knowledge</p> <p>B. Perform totals analyses of homogeneous solids and soil/gravel wastes to compare UCL<sub>90</sub> values for the mean measured contaminant concentrations in a waste stream with specified toxicity characteristic levels in 20.4.1.200 NMAC to determine if the waste is hazardous, and to confirm hazardous waste characterization by acceptable knowledge</p>	<p>A. WP-AP-0002 R4, Par 4.6 &amp; Par 4.8, Att 1 &amp; Att 3</p> <p>B.-C. N/A</p>	<p>A. Y</p> <p>B.-C. N/A</p>	<p>A. Review of AK Performance Report for SR-T001-221F-HET, (TAB-AK6)</p> <p>Review of AK Confirmation Checklist for SR-T001-221F-HET, ((TAB-AK7))</p> <p>B.-C. N/A</p>	<p>A. Y</p> <p>Y</p> <p>B.-C. N/A</p>	<p>B.-C. Waste stream is heterogeneous. SRS is not currently characterizing homogeneous solids or soil/gravel.</p>

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	<p>C. Perform totals analyses of homogeneous solids and soil/gravel wastes to report the average concentration of hazardous constituents in a waste stream, as specified in 20.4.1.200 NMAC, with a 90 percent confidence interval, with all averages greater than the PRQL considered a detection and subsequent assignment, as applicable, of a hazardous waste code, and to confirm hazardous waste characterization by acceptable knowledge</p> <p>D. Use radiography or visual examination to verify physical waste form, identify prohibited items, verify determination of sampling and analytical requirements, and to confirm waste stream delineation by acceptable knowledge</p> <p>E. Use visual examination as a process check of radiography (Section B-4a(1))</p>	<p>D. SW15.7-SOP-RTR-01, Par 1.1</p> <p>E. WP-AP-0009, Par 4.3; SW15.7-SOP-TVEF-01</p>	<p>D. Y</p> <p>E. Y</p>	<p>D. Review of Batch Data Reports: 00-VE-003, (TAB-AK14) 00-RTR-003, (TAB-AK13)</p> <p>E. Review of Batch Data Reports: 00-VE-016, (TAB-AK15) 00-VE-021, (TAB-AK17) 00-VE-015, (TAB-AK16)</p>	<p>D. Y</p> <p>E. Y</p>	
GENERAL REQUIREMENTS						
16	Are the required document(s) described in Permit Attachment B4 containing acceptable knowledge information available? (Section B4-2a)	WP-AP-0002 R4 (all)	Y	<p>Review of AK Performance Report for SR-T001-221F-HET, (TAB-AK6)</p> <p>Review of AK Confirmation Checklist for SR-T001-221F, (TAB-AK7)</p> <p>Review of AK Summary Report for SR-T001-221F-HET, (TAB-AK1)</p> <p>Review of draft WSPF SR2000.001.00 (TAB-AK12)</p>	<p>Y</p> <p>Y</p> <p>Y</p> <p>Y</p>	
17	Has the generator developed a methodology whereby a logical sequence of acceptable knowledge information that progresses from general facility to more detailed waste-specific information can be acquired? (Section B4-2)	WP-AP-0002 R4, Par 4, Appx 1	Y	Review of AK Summary Report for SR-T001-221F-HET, (All), (TAB-AK1)	Y	



	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
18	Does the site have adequate procedures in place to ensure that the acceptable knowledge process is adequately implemented? Do these procedures facilitate the mandatory traceability analysis performed for each Summary Waste Category Group examined during the audit? (Section B-3d, B4-2)	WP-AP-0002 R4, Par 4	Y	WP-AP-0002, R4 IPC-2, Par 4  Review of AK Confirmation Checklist for SR-T001-221F-HET, (TAB-AK7)	Y  Y	
19	Does the generator site's TRU mixed waste management program information clearly define (or provide a methodology for defining) waste categorization schemes and terminology, provide a breakdown of the types and quantities of TRU mixed waste generated/stored at the site, and describe how waste is tracked and managed at the generator site (including historical and current operations)? Do procedures ensure that waste streams are adequately identified? (Section B4-2a)	WP-AP-0002 R4, Par 4.3(2), & Par 4.4	Y	Review of AK Summary Report for SR-T001-221F-HET, (TAB-AK1)	Y  Y	
20	Do site procedures indicate that the site will document, justify, and consistently define waste streams and assign EPA hazardous waste codes? (Section B4-2b)	WP-AP-0002 R4, Par 4.4	Y	Review of AK Summary Report for SR-T001-221F-HET, (TAB-AK1);	Y	Waste stream is non-hazardous, no hazardous waste numbers assigned.
21	Are procedures in place to ensure that the generator/storage site initially characterizes the waste on a waste stream basis using acceptable knowledge and that the waste will be characterized in the same manner as a newly generated waste if the acceptable knowledge information does not meet the requirements of Attachment B4? (Section B-1a)	WP-AP-0002 R4, Par 4.1, 4.3(2); WSRC-RP-99-01097, Par B4-1	Y	N/A	N/A	Newly generated waste was not within the scope of this audit. No waste was identified for reclassification as newly generated.
REQUIRED AND SUPPLEMENTAL INFORMATION						
22	Does the generator site document that the following must be included in the acceptable knowledge record:  A. Map of the site with the areas and facilities involved in TRU mixed waste generation, treatment, and storage identified  B. Facility mission description as related to TRU mixed waste generation and management (e.g., nuclear weapons research may involve metallurgy, radiochemistry, and nuclear physics operations that result in specific waste streams)  C. Description of the operations that generate TRU waste at the site (e.g., plutonium recovery, weapons design, or weapons fabrication)	A.-G. WP-AP-0002 R4, Par 4.3(2)	A.-G. Y	A. Review of AK Summary Report for SR-T001-221F-HET, ATT 1 (TAB-AK1)  B. Review of AK Summary Report for SR-T001-221F-HET, S24.1.4 (TAB-AK1)  C. Review of AK Summary Report for SR-T001-221F-HET, S24.2 (TAB-AK1)  D.	A. Y  B. Y  C. Y  D.	

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	<p>D. Waste identification or categorization schemes used at the facility (e.g., item description codes, content codes)</p> <p>E. Types and quantities of TRU mixed waste generated, including historical generation through future projections</p> <p>F. Correlation of waste streams generated from the same building and process, as appropriate (e.g., sludge, combustibles, metals, and glass)</p> <p>G. Waste certification procedures for retrievably stored and newly generated wastes to be sent to the WIPP facility (Section B4-2a)</p>			<p>Review of AK Summary Report for SR-T001-221F-HET, S24.2 (TAB-AK1)</p> <p>E. Review of AK Summary Report for SR-T001-221F-HET, S25.0 (TAB-AK1)</p> <p>F. Review of AK Summary Report for SR-T001-221F-HET, S25.3 (TAB-AK1)</p> <p>G. Review of AK Summary Report for SR-T001-221F-HET, S25.3 (TAB-AK1)</p>	<p>Y</p> <p>E. Y</p> <p>F. Y</p> <p>G. Y</p>	<p>G. Newly generated waste was not within the scope of this audit.</p>
23	<p>Does the generator site document that the following shall be collected for each waste stream:</p> <p>A. Area(s) and/or building(s) from which the waste stream was or is generated</p> <p>B. Waste stream volume and time period of generation (e.g., 100 standard waste boxes of retrievably stored waste generated from June 1977 through December 1977)</p> <p>C. Waste generating process described for each building (e.g., batch waste stream generated during decommissioning operations of glove boxes)</p> <p>D. Process flow diagrams (e.g., a diagram illustrating glove boxes from a specific building to a size reduction facility to a container storage area). In the case of research/development and analytical laboratory waste, a description of the waste generating processes, rather than a formal process flow diagram, may be included if this modification is justified and the justification is placed in the auditable record</p>	<p>A.-E. WP-AP-0002 R4, Par 4.3(3)</p>	<p>A.-E. Y</p>	<p>A. Review of AK Summary Report for SR-T001-221F-HET, S25.1 (TAB-AK1)</p> <p>B. Review of AK Summary Report for SR-T001-221F-HET, S25.2 (TAB-AK1)</p> <p>C. Review of AK Summary Report for SR-T001-221F-HET, S25.4 (TAB-AK1)</p> <p>D. Review of AK Summary Report for SR-T001-221F-HET, S24.2 (TAB-AK1)</p>	<p>A. Y</p> <p>B. Y</p> <p>C. Y</p> <p>D. Y</p>	

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	E. Material inputs or other information that identifies the chemical content of the waste stream and the physical waste form (e.g., glove box materials and chemical handled during glove box operations, if applicable) (Section B4-2b)			E. Review of AK Summary Report for SR-T001-221F-HET, S25.5.1 (TAB-AK1)	E. Y	
24	Do site documents/procedures confirm that the facility will provide a summary to the Permittees that summarizes all information collected, including basis and rationale for all waste stream designations? Is this summary available for audit review? If discrepant hazardous waste data exist in required information, do sites assign all hazardous waste codes unless the sites choose to justify otherwise? (Section B4-2b)	WP-AP-0002 R4, Par 4.3, 4.4, 4.5, 4.7 (note 1) Appx 4	Y	Review of AK Summary Report for SR-T001-221F-HET (all) (TAB-AK1)	Y	Waste stream is non-hazardous, and no hazardous waste codes were assigned.
25	Do site procedures indicate that if the required AK information is not available for a retrievably stored waste stream, additional characterization information will be acquired and this waste stream shall be designated as newly generated and characterized accordingly? (Section B-1a, B4-2)	WP-AP-0002 R4, Par 4.3(4)	Y	N/A	N/A	No waste was designated as newly generated. Containers with a deficiency are handled per SW15.7-SOP-CONT-01.
26	Have the following procedures been prepared:  A. Procedures for identifying and assigning the physical waste form  B. Procedures for delineating waste streams and assigning Waste Matrix Codes  C. Procedures for resolving inconsistencies in acceptable knowledge documentation  D. Procedures for confirming acceptable knowledge information through headspace gas sampling and analysis, visual examination	A. WP-AP-0002 R4, Par 4.1  B. WP-AP-0002 R4, Par 4.1, 4.3, 4.4  C. WP-AP-0002 R4, Par 4.7. SW15.7-SOP-CONT-01  D. WP-AP-0002 R4, Par	A. Y  B. Y  C. Y  D. Y	A. Review of AK Summary Report for SR-T001-221F-HET, S24.3, 5 (TAB-AK1)  B. Review of AK Summary Report for SR-T001-221F-HET, S2 (TAB-AK1) Review of revised drum lists for SR-T001-221F-HET (TAB-AK8) & (TAB-AK9)  C. Review of Container Deficiency Form 2000-WIPP-DEF-003 for drums: SR595612; SR610025; SR610047, ((TAB-AK10)); Review of Container Deficiency Form 2000-WIPP-0006 for drum SR329024, (TAB-AK11)  D. Review of TRU Waste Data Packages:	A. Y  B. Y  Y  C. Y  Y  D. Y	See CAR 01-003 Closure Information. (TAB-CAR1)

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	and/or radiography, and homogeneous waste sampling and analysis	4.6; SW15.7-SOP-HSGS-01; SW15.7-SOP-HSGA-01; SW15.7-SOP-RTR-01		SR234875, (TAB-AK3) SR235060, (TAB-AK4) SR595610, (TAB-AK5)		
	E. Procedures describing management controls used to ensure prohibited items (specified in the WAP, Permit Attachment B) are documented and managed	E. WP-AP-0002 R4, Par 4.3(6), 4.4(3); SW15.7-SOP-RTR-01; TVEF-01, CONT-01	E. Y	E. Review of AK Summary Report for SR-T001-221F-HET, S25.5.1.2, SR234875, (TAB-AK1);  Review of TRU Waste Data Packages: SR234875, (TAB-AK3) SR235060, (TAB-AK4) SR595610, (TAB-AK5)	E. Y  Y	
	F. Procedures to ensure radiography and visual examination include a list of prohibited items that the operator shall verify are not present in each container of waste (liquids exceeding TSDF-WAC limits, corrosives, ignitables, reactives, and incompatible wastes)	F. WP-AP-0002 R4, Par 4.6, 4.7; SW15.7-SOP-RTR-01, TVEF-01	F. Y	F. Review of TRU Waste Data Packages: SR234875, (TAB-AK3) SR235060, (TAB-AK4) SR595610, (TAB-AK5)	F. Y	
	G. Procedures to document how changes to Waste Matrix Codes, waste stream assignment, and associated EPA hazardous waste codes based on material composition are documented for any waste	G. WP-AP-0002 R4, Par 4.6, 4.7, Att 1; SW15.7-SOP-CONT-01	G. Y	G. Review of Container Deficiency Form 2000-WIPP-DEF-003 for drums: SR595612; SR610025; SR610047, (TAB-AK10); Review of Container Deficiency Form 2000-WIPP-0006 for drum SR329024, (TAB-AK11)	G. Y  Y	
	H. Procedures for newly generated waste shall describe how acceptable knowledge is confirmed using visual examination (Section B4-2b)	H. WSRC-RP-99-01097	H. N/A	H. N/A	H. N/A	H. Newly generated waste not within the scope of this audit
27	Does the generator site provide procedures or written commitment to collect supplemental acceptable knowledge information, as available and as necessary, to supplement required information? (Section B4-2c)	WP-AP-0002 R4, Par 4.3(4); WSRC-RP-99-01097	Y	Review of AK Summary Report for SR-T001-221F-HET, S26, (TAB-AK1)	Y	

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
28	Does the generator site document that all specific, relevant supplemental information used in the acceptable knowledge process will be identified and its use explained? Is all necessary supplemental information assembled and has it been appropriately used? (Section B4-2c)	WP-AP-0002 R4, Par 4.3(4.5)	Y	Review of AK Summary Report for SR-T001-221F-HET, S6, (TAB-AK1)	Y	
29	Does the generator site discrepancy analysis documentation (for acceptable knowledge, supplemental, and required documentation) indicate that if discrepancies are detected, the site must include all hazardous waste codes indicated in the required and supplemental information unless the site chooses to justify an alternative assignment and document justification in the auditable record? (Section B4-2c)	WP-AP-0002 R4, Par 4.3(6), 4.4(3), & 4.7; SW/15.7-SOP-CONT-01, R8, WSRP-RP-99-01097	Y	Review of Container Deficiency Form 2000-WIPP-DEF-003 for drums: SR595612; SR610025; SR610047, (TAB-AK10)  Review of Container Deficiency Form 2000-WIPP-0006 for drum SR329024, (TAB-AK11)	Y  Y	
TRAINING						
30	Does the generator site have procedures to ensure that all personnel involved with acceptable knowledge waste characterization have the following training, and is this training documented?  A. WIPP WAP and TSDF Waste Acceptance Criteria requirements  B. State and Federal RCRA regulations associated with solid and hazardous waste characterization  C. Discrepancy resolution and reporting processes  D. Site-specific procedures associated with waste characterization using acceptable knowledge (Section B4-3a)	A. WP-AP-0002 R4, Par 3, 4.8, Attachment 3  B. WP-AP-0002 R4, Par 4.4(1), & 4.8  C. WP-AP-0002 R4, Par 4.7(7) & 4.8  D. WP-AP-0002 R4, (all)	A. Y  B. Y  C. Y  D. Y	A.-D. Supporting Documentation for Qualification Card of Gilmore F. Lunsford, AK Cognizant Technical Function, (TAB-AK20)	A.-D. Y	
AK PROCEDURES						
31	Has the generator site developed the following procedures, and are these procedures technically sufficient:  A. Sites must prepare and implement a written procedure outlining the specific methodology used to assemble acceptable knowledge records, including the origin of the documentation, how it will be used, and any limitations associated with the information (e.g., identify the purpose and scope of a study that included limited	A. WP-AP-0002 R4 (all)	A. Y	A. Review of AK Summary Report for SR-T001-221F-HET, (all), (TAB-AK1)	A. Y	

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	sampling and analysis data)					
	B. Sites must develop and implement a written procedure to compile the required acceptable knowledge record	B. WP-AP-0002 R4, Par 1.1, 4.3, 4.4, 4.5, Appx 4	B. Y	B. Review of AK Summary Report for SR-T001-221F-HET, (TAB- AK1)	B. Y	
	C. Sites must develop and implement a written procedure that ensures unacceptable wastes (e.g., reactive, ignitable, corrosive) are identified and segregated from TRU mixed waste populations sent to WIPP	C. WP-AP-0002 R4, Par 4.3(6) & 4.4(3)	C. Y	C. Review of AK Summary Report for SR-T001-221F-HET, (TAB- AK1); Review of Batch Data Reports: 00-RTR-003, (TAB-AK13) 00-VE-003, (TAB-AK14)	C. Y  Y	
	D. Sites must prepare and implement a written procedure to evaluate acceptable knowledge and resolve discrepancies. If different sources of information indicate different hazardous wastes are present, then sites must include all sources of information in their records and conservatively assign all potential hazardous waste codes, unless the site chooses to justify an alternative assignment and document the justification in the auditable record	D. SW15.7-SOP-RTR-01, TVEF-01; WP-AP-0002 R4, Par 4.6, 4.7	D. Y	D. Review of AK Summary Report for SR-T001-221F-HET, (TAB- AK1); Review of Batch Data Reports: 00-RTR-003, (TAB-AK13) 00-VE-003, (TAB-AK14); Review of Container Deficiency Form 2000-WIPP-DEF-0003 for drums: SR595612; SR610025; SR610047, (TAB-AK10); Review of Container Deficiency Form 2000-WIPP-DEF-0006 for drum SR329024, (TAB-AK11)	D. Y  Y  Y	
	E. Sites must prepare and implement a written procedure in compliance with Section B4-3(d) to identify hazardous wastes and assign the appropriate hazardous waste codes to each waste stream. The following are minimum baseline requirements/standards that site-specific procedures must include to ensure comparable and consistent characterization of hazardous waste:	E. WP-AP-0002 R4, Par 4.3, 4.4, 4.5, 4.6, 4.7, & Att 4	E. Y	E. N/A	E N/A	E. Waste stream is non-hazardous
	1. Compile all of the required information in an auditable record	E.1 WP-AP-0002 R4, Par 4.3 & 4.4	E.1. Y	E.1 Review of AK Summary Report for SR-T001-221F-HET, (TAB- AK1);	E.1 Y	

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
				Review of Batch Data Reports: 00-RTR-003, (TAB-AK13) 00-VE-003, (TAB-AK14) 00-VE-016, (TAB-AK15) 00-VE-021, (TAB-AK17) 00-VE-015, (TAB-AK16); Review of draft WSPF SR2000.001.00 (TAB-AK12); Review of Batch Data Report: 00-HSGS-003, (TAB-AK18)	Y     Y Y	
	2. Review the required information to determine if the waste is listed under 40 CFR Part 261, Subpart D. Assign all listed hazardous waste codes, unless the site chooses to justify an alternative assignment and document the justification in the auditable record	E.2. WP-AP-0002 R4, Par 4.4(1)	E.2. Y	E.2 Review of AK Summary Report for SR-T001-221F-HET, (TAB- AK1)	E.2 N/A	E.2 Waste does not contain hazardous constituents.
	3. Review the required information to determine if the waste may contain hazardous constituents included in the toxicity characteristics specified in 40 CFR Part 261, Subpart C. If a toxicity characteristic contaminant is identified and is not included as a listed waste, assign the toxicity characteristic code, unless data are available which demonstrate that the concentration of the constituent in the waste is less than the toxicity characteristic regulatory level. When data are not available, the toxicity characteristic hazardous waste code for the identified hazardous constituent must be applied to the mixed waste stream	E.3. WP-AP-0002 R4, Par 4.4 (1)	E.3 Y	E.3 Review of AK Summary Report for SR-T001-221F-HET, (TAB- AK1)	E.3 N/A	E.3 Waste does not contain hazardous constituents.
	F. For newly generated waste, procedures shall be developed and implemented to characterize hazardous waste using acceptable knowledge prior to packaging	F. WSRC-RP-99-01097, Par B4-3b	F. Y	F. N/A	F. N/A	F. Newly generated waste not within the scope of this audit.

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	<p>G. Sites must develop and implement a written procedure for the confirmation of acceptable knowledge in accordance with Section B4-3d</p> <p>H. Sites must prepare and implement a written procedure that provides a cross-reference to the applicable waste Summary Category Group (i.e., S3000, S4000, and S5000) to verify all of the required confirmation data have been evaluated and the proper hazardous waste codes have been assigned</p> <p>I. Sites shall ensure that results of other audits of the TRU mixed waste characterization programs at the site are available in the records (Section B4-3b)</p>	<p>G. WP-AP-0002 R4, Par 4.4(1), 4.6</p> <p>H. WP-AP-0002 R4, Par 3(2.3), 4.5, &amp; Appx 4</p> <p>I. WP-AP-0002 R4, Par 3 (2.3), 4.5 &amp; Appx 4</p>	<p>G. Y</p> <p>H. Y</p> <p>I. Y</p>	<p>G. Review of AK Confirmation Checklist for SR-T001-221F-HET, (TAB-AK7)</p> <p>H. Review of AK Summary Report for SR-T001-221F-HET, S22.0 &amp; S5.5.1, (TAB-AK1)</p> <p>I. N/A</p>	<p>G. Y</p> <p>H. Y</p> <p>I. N/A</p>	<p>I. This audit was the first WAP audit performed on the SRS program.</p>
32	<p>Does the site have implemented procedures which comply with the following criteria to establish acceptable knowledge records:</p> <p>A. Acceptable knowledge information shall be compiled in an auditable record, including a road map for all applicable information</p> <p>B. The overview of the facility and TRU mixed waste management operations in the context of the facility's mission shall be correlated to specific waste stream information</p> <p>C. Correlations between waste streams, with regard to time of generation, waste generating processes, and site-specific facilities, shall be clearly described. For newly generated wastes, the rate and quantity of waste to be generated shall be defined</p> <p>D. A reference list shall be provided that identifies documents, databases, quality assurance protocols, and other sources of information that support the acceptable knowledge information (Section B4-3c)</p>	<p>A. WP-AP-0002 R4, Par 4.3, 4.5 &amp; Appx 4</p> <p>B. WP-AP-0002 R4, Par 4.5 &amp; Appx 4</p> <p>C. WP-AP-0002 R4, Par 4.5, Appx 4 WSRC-RP-99-01097</p> <p>D. WP-AP-0002 R4, Par 4.5, Appx 4</p>	<p>A. Y</p> <p>B. Y</p> <p>C. Y</p> <p>D. Y</p>	<p>A. Review of AK Summary Report for SR-T001-221F-HET, ATT 2, (TAB-AK1)</p> <p>B. Review of AK Summary Report for SR-T001-221F-HET, S24.0, (TAB-AK1)</p> <p>C. Review of AK Summary Report for SR-T001-221F-HET, S5.3, (TAB-AK1)</p> <p>D. Review of AK Summary Report for SR-T001-221F-HET, ATT 2 (TAB-AK1)</p>	<p>A. Y</p> <p>B. Y</p> <p>C. Y</p> <p>D. Y</p>	<p>Newly generated waste not within the scope of this audit.</p>
33	<p>Has the generator site implemented administrative controls to ensure that prohibited items are documented and managed in accordance with site-specific certification plans and that the following minimum elements are addressed in site-specific documentation associated with administrative controls:</p> <p>A. Identify the organization(s) responsible for compliance with</p>	<p>SW15.7-SOP-CONT-01 R8</p> <p>A.</p>	<p>A.</p>	<p>A.</p>	<p>A.</p>	



	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	administrative controls	WP-AP-0002 R4, Par 4.3 & 4.4 (3); WSRC-RP-99-01097	Y	WP-AP-0002 R4, Par 4.3, 4.4 (3), WSRC-RP-99-01097	Y	
	B. Identify the oversight procedures and frequency of actions to verify compliance with administrative controls	B. WP-AP-0002 R4, Par 4.6 & 4.7; WSRC-RP-99-0197	B. Y	B. WP-AP-0002 R4, Par 4.6, 4.7, WSRC-RP-99-0197, 1Q, QAP 18-6, R1	B. Y	
	C. Develop on-the-job training specific to administrative control procedures	C. WP-AP-0002 R4, Par 4.8; WSRC-RP-99-01097	C. Y	C. WP-AP-0002 R4, Par 4.8, WSRC-RP-99-01097, 1Q, QAP 2-2, R2	C. Y	
	D. Ensure that personnel may stop work if noncompliance with administrative controls is identified	D. WSRC-RP-99-01097 1Q, QAP 1-2, R3	D. Y	D. 1Q, QAP 1-2, R3 2000-NCR-26-0034, (TAB- AK21) 2000-PDR-26-0015, (TAB- AK22) 2000-PDR-26-0019, (TAB- AK23) 2000-WIPP-DEF-0021, (TAB- AK24) 2000-WIPP-DEF-0014, (TAB- AK25)	D. Y	
	E. Develop a nonconformance process that complies with the requirements in Section B3-13 of the WAP to document and establish corrective actions	E. WP-AP-0002 R4, Par 4.4 (3), 4.7 WSRC-RP-99-01097	E. Y	E. 1Q, QAP 15-2, R5 Container Deficiency Forms: 2000-WIPP-DEF-0014 for container SR235195, (TAB- AK25); 2000-WIPP-DEF-0011 for container SR235187, (TAB- AK19); 2000-WIPP-DEF-0021 for container SR328901, (TAB- AK2)	E. Y	
	F. As part of the corrective action process, assess the potential time frame of the noncompliance, the potentially affected waste population(s), and the reassessment and recertification of those wastes (Section B4-3b, )	F. WP-AP-0002 R4, Par 4.7, Attachment 2	F. Y	F. 1Q, QAP 16-1, R6 2000-NCR-26-0034, (TAB- AK21) 2000-PDR-26-0015, (TAB-	F. Y	

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
				AK22) 2000-PDR-26-0019, (TAB- AK23) 2000-WIPP-DEF-0021, (TAB- AK24) 2000-WIPP-DEF-0014, (TAB- AK25)		
<b>CONFIRMATION OF ACCEPTABLE KNOWLEDGE</b>						
34	Does the generator site have written procedures for the confirmation of all acceptable knowledge information using headspace gas sampling and analysis, homogeneous waste sampling and analysis, radiography, and/or visual examination? Are these procedures developed for both retrievably stored and newly generated waste? (Section B4-3d)	WP-AP-0002 R4, Par 4.6; SW15.7-SOP-RTR-01; TVEF-01, HSGS-01, HSGA-01; WSRC-RP-99-01097	Y	Review of TRU Waste Data Packages for: SR234875, (TAB-AK3) SR235060, (TAB-AK4) SR595610, (TAB-AK5)  Review of Batch Data Reports: 00-RTR-003, (TAB-AK13) 00-VE-003, (TAB-AK14) 00-VE-015, (TAB-AK16) 00-VE-016, (TAB-AK15) 00-VE-021, (TAB-AK17)  Review of Batch Data Report: 00-HSGS-003, (TAB-AK18)	Y  Y  Y	Newly generated wastes are not within the scope of this audit.
35	Does the generator site have written procedures for newly generated waste to document the confirmation of acceptable knowledge information with visual examination prior to or during waste packaging? Do these procedures address the required elements in Section B4-3d? (Section B4-3d)	WSRC-RP-99-01097	Y	N/A	N/A	Newly generated wastes are not within the scope of this audit.
36	Do the site's documents ensure that acceptable knowledge is confirmed using the visual examination technique or VE in lieu of radiography when retrievably stored waste is repackaged? (Section B4-3d)	WP-AP-0002 R4, Par 4.6 (d); WSRC-RP-99-01097	Y	N/A	N/A	Repackaged wastes are not within the scope of this audit.
37	Does the generator site have procedures for reevaluating acceptable knowledge if radiography or visual examination identify it to be a different Waste Matrix Code? Does this procedure describe how the waste is reassigned, acceptable knowledge is reevaluated, and appropriate hazardous waste codes are assigned? (Section B4-3d)	WP-AP-0002 R4, Par 4.7 (1); SW15.7-SOP-RTR-01 R8	Y	WP-AP-0002 R4, Par 4.7 (1) Reference CAR 01-003 for additional information	Y	See CAR 01-003 Closure Information. (TAB-CAR1)
38	Do site procedures indicate that debris wastes are assigned toxicity characteristic EPA numbers based on AK? (Section B4-3d)	WP-AP-0002 R4, Par 4.4 (1)	Y	N/A	N/A	This waste stream is non-hazardous.

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
39	Do the procedures document how discrepancies in the Waste Matrix Code are recorded and how changes to hazardous waste codes are recorded? (Section B4-3d)	WP-AP-0002 R4, Par 4.6(2) & 4.7; WSRC-RP-99-01097	Y	Review of Batch Data Reports: 00-RTR-003, (TAB-AK13) 00-VE-003, (TAB-AK14)	Y	See CAR 01-003 Closure Information. (TAB-CAR1)
<b>CRITERIA FOR ASSEMBLING ACCEPTABLE KNOWLEDGE RECORD DELINEATING THE WASTE STREAM</b>						
40	If wastes are reassigned to a different Waste Matrix Code based on visual examination or radiography, does the generator site have written documentation to ensure that the following steps are followed:  A. Review existing information based on the container identification number and document all differences in hazardous waste code assignments  B. If differences exist in the hazardous waste codes that were assigned, reassess and document all required acceptable knowledge information (Section B4-3b) associated with the new designation  C. Reassess and document all sampling and analytical data associated with the waste  D. Verify and document that the reassigned Waste Matrix Code was generated within the specified time period, area and buildings, and waste generating process, and that the process material inputs are consistent with the waste material parameters identified during radiography or visual examination  E. Record all changes to acceptable knowledge records  F. If discrepancies exist in the acceptable knowledge information for the reassigned Waste Matrix Code, document the segregation of this container and define the actions necessary to fully characterize the waste (Section B4-3d)	A. WP-AP-0002 R4, Par 4.7(5)  B. WP-AP-0002 R4, Par 4.7(5)  C. WP-AP-0002 R4, Par 4.7(5), Att 2  D. WP-AP-0002 R4, Par 4.7(5), Att 1  E. WP-AP-0002 R4, Par 4.7(5) Att 2  F. WP-AP-0002 R4, Par 4.7(5), Att 2	A. Y  B. Y  C. Y  D. Y  E. Y  F. Y	These items were the subject of CAR-00-003.  Objective evidence reviewed to verify these items were satisfactorily performed is contained in (TAB-CAR1).	A. Y  B. Y  C. Y  D. Y  E. Y  F. Y	
41	Do the generator site documents state that both sampling and analysis (for S3000 and S4000 waste streams) and headspace gas (for all waste streams) data be used to confirm acceptable knowledge hazardous waste designations? (Section B4-3d)	WP-AP-0002 R4, Par 4.6; WSRC-RP-99-01097; SW15.7-SOP-HSGA-01	Y	Review of Batch Data Report: 00-HSGS-003 (TAB-AK18)	Y	S3000 and S4000 waste streams not within the scope of this audit.

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
42	Do site documents state that radiography (or VE, if waste is newly generated) is used to confirm Waste Matrix Code and waste streams assigned to retrievably stored waste via AK? (Section B4-3d)	WP-AP-0002 R4, Par 4.6; SW15.7-SOP-RTR-01, Par 1.1;	Y	Review of Batch Data Report: 00-RTR-003 (TAB-AK13)	Y	See CAR 01-003 (TAB-CAR1)
43	Do site procedures ensure that headspace gas and solid/soil analytical data are used to confirm or reevaluate AK assignments concerning the presence or absence of F-listed solvents and concentration of applicable toxicity characteristic solvents? If a constituent is detected in headspace gas, the site must provide documentation to support any determination that organic constituents are associated with packaging materials, radiolysis, or other uses not consistent with solvent use. If the source of the detected F-listed solvents cannot be identified, the appropriate spent solvent hazardous waste code will be assigned to the waste stream.  If a constituent in a listed waste is present in solid/soil analytical results, the appropriate listed waste shall be added to the waste stream. F-listed waste assigned by acceptable knowledge shall not be removed based on confirmatory headspace gas or solids analysis. In the case of totals/TCLP analysis, do procedures reflect the allowance for concentration assessments, wherein sites may add or remove total/TCLP and non-toxic F003 constituents found in headspace and solid/soil analyses? (Section B4-3d)	WP-AP-0002 R4, Par 4.6; WP-AP-0009 R1, Par 4.1; WSRC-RP-99-01097	Y	Review of Batch Data Report: 00-HSGS-003 (TAB-AK18)	Y	The selected waste stream is defined as non-hazardous.
44	If the confirmatory process determines that a hazardous constituent as identified in headspace gas sampling or soil/homogenous waste sampling is present in the waste, does the generator site indicate that it will: 1) assign the hazardous waste code to the entire waste stream, or 2) segregate drums containing detectable concentrations of solvent into a separate waste stream and assign applicable hazardous waste codes? (Section B4-3d)	WP-AP-0002 R4, Par 4.6; WP-AP-0009 R1; WSRC-RP-99-01097; SW15.7-SOP-CONT-01	Y	Review of Container Deficiency Form 2000-WIPP-DEF-0006 for drum SR329024, (TAB-AK11)	Y	
45	Does the generator site document, justify, and consistently delineate waste streams and assign hazardous waste codes based on site-specific permit requirements or state-enforced agreements? (Section B4-3d)	WP-AP-0002 R4, Par 4.1; WP-AP-0009 R1; WSRC-RP-99-01097	Y	Review of draft WSPF SR2000.001.00 (TAB-AK12)  Review of AK Summary Report for SR-T001-221F-HET (TAB-AK1)	Y	See CAR 01-003. (TAB-CAR1)

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
46	Does the generator site have written methodologies for determining the mean concentration of solvent VOCs detected by either headspace gas analysis or homogeneous waste sampling for each waste stream or waste stream lot, and are all data used in the determination, including data qualified with AU@ or AJ@ flags (AU@ flags designated as one half the MDL and AJ@ flags designated as less than the PRQL but greater than the MDL)? (Section B4-3d)	WP-AP-0002 R4, Par 4.6; WP-AP-0009 R1, Par 2.2(1) & 4.1 (note 2); WSRC-RP-99-01097	Y	Review of draft WSPF SR2000.001.00 (TAB-AK12) Review of Batch Data Report: 00-HSGS-003 (TAB-AK18)	Y	
47	Do procedures ensure that spent solvent assignments are made by using the UCL <sub>90</sub> (of mean concentration) and comparing this with the PRQLs? If the UCL <sub>90</sub> exceeds the PRQL, is acceptable knowledge reevaluated and a new waste stream designated, or is the current waste stream description modified to include the hazardous constituent? (Section B4-3d)	WP-AP-0002 R4, Par 4.6(1); WP-AP-0009 R1, Par 4.1; WSRC-RP-99-01097	Y	Review of draft WSPF SR2000.001.00 (TAB-AK12)  Review of Batch Data Report: 00-HSGS-003 (TAB-AK18)	Y  Y	
48	Does the site have written procedures for situations where concentrations of some VOCs are orders of magnitude higher than other target analytes? In these cases, elevated MDLs may be generated, and those constituents with an elevated MDL but AU@ designation will not be used in median calculations. (Section B4-3d)	SW17-INSP-PDP-02 R2 IPC-1; WP-AP-0009 R1; WSRC-RP-99-01097	Y	Review of Batch Data Report: 00-HSGS-003 (TAB-AK18)	Y	
DATA QUALITY REQUIREMENTS						
49	Are acceptable knowledge processes consistently applied among all generator sites, and does each generator site comply with the following data quality requirements for acceptable knowledge documentation:  A. Precision - Precision is the agreement among a set of replicate measurements without assumption of the knowledge of a true value. The qualitative determinations, such as compiling and assessing acceptable knowledge documentation, do not lend themselves to statistical evaluations of precision. Therefore, precision requirements are not established for acceptable knowledge  B. Accuracy - Accuracy is the degree of agreement between an observed sample result and the true value. The percentage of waste containers which require reassignment to a new Waste Matrix Code and/or designation of different hazardous waste codes based on the reevaluation of acceptable knowledge and sampling and analysis data will be reported as a measure of acceptable knowledge accuracy  C. Completeness - Completeness is an assessment of the number of waste streams or number of samples collected to the	WSRC-99-01097  A. N/A   B.-D. WP-AP-0002 R4, Par 4.8	A. N/A   B.-D. Y	A. Review of AK Performance Report for SR-T001-221F-HET, (TAB-AK6)  B.-D. Review of AK Performance Report for SR-T001-221F-HET, (TAB-AK6)	A. N/A   B.-D. Y	Precision requirements not established for AK

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	<p>number of samples determined to be usable through the data validation process. The acceptable knowledge record must contain 100 percent of the information specified in Section B4-2. The usability of the acceptable knowledge information will be assessed for completeness during audits</p> <p>D. Comparability - Data are considered comparable when one set of data can be compared to another set of data. Comparability is ensured through sites meeting the training requirements and complying with the minimum standards outlined for procedures that are used to implement the acceptable knowledge process. All sites must assign hazardous waste codes in accordance with Section B4-3b and provide this information regarding its waste to other sites who store or generate a similar waste stream</p>					
	<p>E. Representativeness - Representativeness expresses the degree to which sample data accurately and precisely represent characteristics of a population. Representativeness is a qualitative parameter that will be satisfied by ensuring that the process of obtaining, evaluating, and documenting acceptable knowledge information is performed in accordance with the minimum standards established in Section B4-3b. Sites also must assess and document the limitations of the acceptable knowledge information used to assign hazardous waste codes (e.g., purpose and scope of information, date of publication, type and extent to which waste parameters are addressed and limitations of information in identifying hazardous wastes) (Section B4-3e)</p>	E. WP-AP-0002 R4, Par 4.8	E. Y	E. Review of AK Performance Report for SR-T001-221F-HET., (TAB-AK6)	E. Y	
50	Does the generator site address quality control by tracking its performance with regard to the use of acceptable knowledge by: 1) assessing the frequency of inconsistencies among information, and 2) documenting the results of acceptable knowledge confirmation through radiography or visual examination, headspace gas analyses, and homogeneous waste analyses. In addition, the acceptable knowledge process and waste stream documentation must be evaluated through internal assessments by quality assurance organizations and assessments by auditors or observers external to the organization (i.e., Permittees, NMED, EPA). (Section B4-3e)	WP-AP-0002 R4, Par 4.7, 4.8, & Att 3; WP-AP-0004; QAPD, Par 3.0	Y		Y	
<b>AUDIT REQUIREMENTS</b>						
51	What waste stream/waste Summary Category Groups does this acceptable knowledge audit apply to? (Section B4-3f)	WP-AP-0002 R4, Par 4.5, Appx 4; WSRC-RP-99-01097, Par A-3.	Y	Review of AK Summary Report for SR-T001-221F-HET, S22.0 & S5.5, (TAB-AK1)	Y	

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
52	Evaluate acceptable knowledge documentation for at least one waste stream from each Summary Category Group(s) being audited. The audit must include acceptable knowledge traceability for at least one container from each audited Summary Category Groups. (Section B4-3f)	N/A	N/A	Performed an adequacy review of the AK process	Y	This is the Carlsbad Field Office responsibility. This was performed during the audit.
53	Review all procedures and associated processes developed by the site for documenting the process of compiling acceptable knowledge documentation; correlating information to specific waste inventories; assigning hazardous waste codes; and identifying, resolving, and documenting discrepancies in acceptable knowledge records. (Section B4-3f)	N/A	N/A	Performed an adequacy review of the AK process	Y	This is the Carlsbad Field Office responsibility. This was performed during the audit.
54	Evaluate the adequacy of acceptable knowledge procedures and identify any deficiencies in procedures documented in the audit report. (Section B4-3f)	N/A	N/A	Performed an adequacy review of the AK process	Y	This is the Carlsbad Field Office responsibility. This was performed during the audit.
55	Evaluate all required AK documentation for: A. logic B. completeness C. defensibility (Section B4-3f)	N/A	N/A	The AK information for TRU Waste Stream SR-T001-221F-HET	Y	This is the Carlsbad Field Office responsibility. This was performed during the audit. The AK information for TRU Waste Stream SR-T001-221F-HET was reviewed and found adequate except for Waste Matrix Code Assignment See CAR-01-003 (TAB-CAR1)
56	Assess completeness, traceability of information, consistency of application of information, clarity of presentation, degree of compliance with Attachment B4 of the WAP, nonconformance procedures, and oversight procedures. (Section B4-3f)	N/A	N/A	Performed an adequacy review of the AK process	Y	This is the Carlsbad Field Office responsibility. This was performed during the audit.
57	Evaluate the availability of required AK data. Review the records for correlations to specific waste streams and for basis of hazardous waste characterization. Is all required information included and are hazardous waste designations appropriate? (Section B4-3f)	N/A	N/A	Performed an adequacy review of the AK process	Y	This is the Carlsbad Field Office responsibility. This was performed during the audit.
58	Verify and document that site used administrative controls and followed written procedures to characterize hazardous waste for newly generated and retrievably stored wastes. Auditors will review procedures used by site to confirm acceptable knowledge. (Section B4-3f)	N/A	N/A	Performed an adequacy review of the AK process	Y	This is the Carlsbad Field Office responsibility. This was performed during the audit.
ADDITIONAL CONFIRMATION						
59	Does the site have procedures/assurances that any waste container with	WP-AP-0002 R4, Par	Y	Review of Container Deficiency	Y	

	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	unresolved discrepancies associated with hazardous waste characterization will not be managed, stored, or disposed of at the WIPP until the discrepancies are resolved? (Section B4-4)	4.7; SW15.7-SOP-CONT-01 R8		Form 2000-WIPP-DEF-0003 for drums: SR595612; SR610025; SR610047, (TAB-AK10);  Review of Container Deficiency Form 2000-WIPP-DEF-0006 for drum SR329024, (TAB-AK11)		
60	Has a waste stream been revoked? Has NMED been notified when a waste stream is revoked ? (Section B4-4)	N/A	N/A	N/A	N/A	No waste stream has been revoked
61	If data consistently indicate discrepancies with acceptable knowledge information, has the site reassessed the materials and processes that generate the waste, resubmitted waste stream profile information, and implemented their corrective action system? Until discrepancies are resolved, management, storage, or disposal of the waste stream at the WIPP is prohibited. (Section B4-4)	WP-AP-0002 R4, Par 4.6, 4.7 & Att 2; WSRC-RP-99-01097	Y	Review of revised list of drums for SR-T001-221F-HET, (TAB-AK8) & (TAB-AK9)  Review of AK Summary Report for SR-T001-221F-HET, (TAB-AK1)	Y	See CAR 01-003. (TAB-CAR1)
62	Prior to shipment, does the site review Waste Stream Profile Forms, the WWIS, and associated Batch Data Reports to ensure that confirmatory analyses verify hazardous waste characterization from acceptable knowledge? (Section B4-4)	SW18-WP-AP-0010 R1; WSRC-RP-99-01097	Y	Review of draft WSPF SR2000.001.00 (TAB-AK12)	Y	
<b>HEADSPACE GAS SAMPLING FREQUENCY</b>						
63	Are procedures in place to ensure that every retrievably stored and newly generated waste container or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1)(i) and B-3a(1)(ii) will undergo headspace gas sampling and analysis? (Section B4-3d)	SW15.7-SOP-HSGS-01, Par 1.1; SW15.7-SOP-HSGA-01, Par 1.2	Y	Review of Batch Data Report: 00-HSGS-003, (TAB-AK18)	Y	Newly generated waste is not within the scope of this audit.
<b>CHARACTERIZATION AND SYSTEM REQUIREMENTS</b>						
64	Does the site have procedures to ensure that radiography is used to verify the Waste Matrix Code (physical form), estimate waste material parameter weights, and identify prohibited items for each waste container of retrievably stored waste? (Section B-3c, B3-4)	WP-AP-0002 R4, Par 4.3, 4.4, 4.6, 4.7, 4.8 SW15.7-SOP-RTR-01	Y	Review of Batch Data Report: 00-RTR-003, (TAB-AK13)	Y	
<b>DATA COMPILATION</b>						



	TABLE B6-4 Acceptable Knowledge (AK) <sup>1</sup> WAP Requirement <sup>2</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
65	If a discrepancy is noted, do procedures ensure that the proper waste stream assignment is determined, the correct hazardous waste codes assigned, and the resolution documented? (Section , B-3c)	WP-AP-0002 R4, Par 4.7	Y	Review of Container Deficiency Form 2000-WIPP-DEF-0003 for drums: SR595612; SR610025; SR610047, (TAB-AK10)  Review of Container Deficiency Form 2000-WIPP-DEF-0006 for drum SR329024, (TAB-AK11)	Y  Y	

1. NMED expects a traceability analysis to be performed, the results of which should be presented on this checklist under the "Examples of Implementation" column. Further, the traceability analysis process and results should be discussed in the final audit report.

2. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to determine whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

**SRS (A-01-01)**

**Table B6-5**

**Headspace Gas Sampling and Data Generation Level Review Checklist**

	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
WASTE STREAM IDENTIFICATION						
1	Are procedures in place to ensure that waste is characterized in lots and/or batches, if necessary? (Sampling batches of up to 20 samples collected within 14 days of the first sample, analytical batches of up to 20 samples received within 14 days of first sample receipt, and on-line batches collected within 12 hours and analyzed in accordance with the method requirement) (Section B-3, B3-3)	SW15.7-SOP-HSGS-01, R4	Y	Observed sampling on 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	
2	Do site documents ensure that all applicable waste characterization techniques specified in Attachment B are used by the generator/storage site to delineate the waste on a waste stream basis? (Section B-Introduction, B-1a)	SW15.7-SOP-HSGS-01, R4	Y	Observed sampling on 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	
UNACCEPTABLE WASTE						
3	Are procedures in place to ensure that waste containers do not include the following prohibited waste:  A. Liquid waste (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container. Total residual liquid in any payload container may not exceed 1 percent volume of that container)  B. Non-radionuclide pyrophoric materials  C. Hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes)  D. Wastes incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes  E. Wastes containing explosives or compressed gases  F. Wastes with polychlorinated biphenyl (PCB) concentrations equal to or greater than 50 parts per million  G. Wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)	SW15.7-SOP-HSGS-01, R4	Y	Observed sampling on 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	

	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure</b> <b>since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>H. RH TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater)</p> <p>I. Any waste container that does not have VOC concentration values reported for the headspace</p> <p>J. Any waste container which has not undergone either radiographic or visual examination</p> <p>K. Any waste container from a waste stream which has not been preceded by an appropriate, certified Waste Stream Profile Form (see Section B-1d) (Section B-1c)</p>					
4	Are procedures in place to ensure that the generator/storage site uses radiography, visual examination, headspace gas sampling and analysis and, as applicable, homogeneous waste sampling and analysis, to confirm the absence of the prohibited waste listed above? (Section B-3, B-3c)	SW15.7-SOP-HSGS-01, R4	Y	Observed sampling on 11/14/00. Review of Batch Data Reports: 00-HSGS-003 ( <b>TAB-HSG1</b> ) 00-HSGS-005 ( <b>TAB-HSG2</b> )	Y	
<b>GENERAL SAMPLING AND ANALYTICAL REQUIREMENTS</b>						
5	<p>Are procedures in place to ensure that headspace gas sampling and analysis shall be used to:</p> <p>A. Determine the types and concentrations of VOCs in the void volume of waste containers</p> <p>B. Ensure that there are no adverse worker or public health impacts</p> <p>C. Compare VOC constituents to those assigned by acceptable knowledge and assign hazardous waste codes as warranted (Section B-3a(1))</p>	<p>A. SW15.7-SOP-HSGS-01, R4</p> <p>B. N/A</p> <p>C. SW18-WP-AP-0010, R1</p>	<p>A. Y</p> <p>B. N/A</p> <p>C. Y</p>	<p>A. Observed sampling on 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (<b>TAB-HSG1</b>) 00-HSGS-005 (<b>TAB-HSG2</b>)</p> <p>B. N/A</p> <p>C. WSP Package SR-T001-221F-HET (<b>TAB-HSG6</b>)</p>	<p>Y</p> <p>C. Y</p>	<p>B. Evaluation of public health impacts is the responsibility of the WIPP.</p>
6	Are procedures in place to ensure that each TRU mixed waste container or statistically selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in B-3a(1)(i) and B-3a(1)(ii) will be sampled and analyzed according to sampling protocols, equipment, and QA/QC methods as specified in Attachment B1? (Section B-3a(1))	SW15.7-SOP-HSGS-01, R4	Y	Observed sampling on 11/14/00. Review of Batch Data Reports: 00-HSGS-003 ( <b>TAB-HSG1</b> ) 00-HSGS-005 ( <b>TAB-HSG2</b> )	Y	

	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
DATA GENERATION, VERIFICATION, VALIDATION, DOCUMENTATION, AND QUALITY ASSURANCE						
7	Are procedures in place to ensure that the following data quality objectives are met:  Use headspace gas sampling and analysis to identify and quantify VOCs to ensure compliance with the environmental performance standards of 20.4.1.500 NMAC and to confirm hazardous waste identification by acceptable knowledge (Section B-4a(1))	SW15.7-SOP-HSGS-01, R4	Y	Observed sampling on 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	
8	Are procedures in place to ensure that the following quality assurance objectives are adequately defined and assessed for each characterization method:  A. Precision as a measure of the mutual agreement among multiple measurements  B. Accuracy as the degree of agreement between a measurement result and a true or known value  C. Completeness as a measure of the amount of valid data obtained from a method compared to the total amount of data obtained that is expressed as a percentage  D. Comparability as the degree to which one data set can be compared to another data set (Section B-4a(2))	A. N/A  B. N/A  C.-D. SW18-WP-AP-0014, R0, Att 6	A. N/A  B. N/A  C.-D. Y	A. N/A  B. N/A  C.-D. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	A. N/A  B. N/A  C. Y  D. Y	A. – B. Precision and accuracy are not applicable to sampling alone. Precision and accuracy are verified during analysis. See Item #15 in Table B6-6.
9	With respect to data generation, are procedures in place to ensure that the generator/storage site's waste characterization program meets the following general requirements:  A. Batch Data Reports must be reported accurately in a pre-approved format, must be maintained in permanent files, and must be traceable (Section B-4a(4), B-4a(7), B3-10a)  B. All data must receive a technical review by another qualified analyst (Section B3-10a(1))	A. SW15.7-SOP-HSGS-01, R4  B. SW18-WP-AP-0015, R0, Par 3.3	A. Y  B. Y	A. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)  B. Review of Batch Data Reports: 00-HSGS-003, Pp. 46-47 (TAB-HSG1) 00-HSGS-005, Pp. 48-49 (TAB-HSG2) (ITR Review)	A. Y  B. Y  C. Y	

	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement'</b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure</b> <b>since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	C. All raw data must be reviewed and have the release signatures of a technical supervisor and a QA officer before release (Section B3-10a(2), B3-10a(3))	C. SW18-WP-AP-0015, R0, Par 3.4	C. Y	C. Review of Batch Data Reports: 00-HSGS-003, Pp. 71 – 74 ( <b>TAB-HSG1</b> ) 00-HSGS-005, Pp. 50-51 ( <b>TAB-HSG2</b> ) (TS and QA Review)		
10	Are procedures in place to ensure that the generator/storage site performs data validation and verification of waste characterization data for each waste container? (Section B-4, B3-10)	SW18-WP-AP-0014, R0	Y	Review of Batch Data Reports: 00-HSGS-003, Pp. 71-74 ( <b>TAB-HSG1</b> ) 00-HSGS-005, Pp. 48-50 ( <b>TAB-HSG2</b> )	Y	Review checklists for ITR, TS and QA.
11	Are procedures in place to ensure that the generator/storage site prepares analytical, testing, and sampling Batch Data Reports to meet the requirements of their own site-specific QAPJP and/or SOPs? (Section B-4a(4))	SW15.7-SOP-HSGS-01, R4	Y	Review of Batch Data Reports: 00-HSGS-003 ( <b>TAB-HSG1</b> ) 00-HSGS-005 ( <b>TAB-HSG2</b> )	Y	
12	<p>Are procedures in place to ensure that all raw data are collected and managed at the data generation level in accordance with the following criteria:</p> <p>A. All raw data shall be signed and dated in reproducible ink by the individual collecting the data, or signed and dated using electronic signatures</p> <p>B. All data shall be recorded clearly, legibly, and accurately in field and laboratory records and include all applicable sample identification numbers (for sampling and analytical labs)</p> <p>C. All changes to original data shall be lined out, initialed, and dated by the individual making the change. Original data may not be obliterated or otherwise be made unreadable. Data changes shall only be made by the individual who originally collected the data or an individual authorized to change the data</p> <p>D. All data shall be transferred and reduced from field and laboratory records completely and accurately</p> <p>E. All field and laboratory records shall be maintained as specified in Table B-7 of Attachment B</p> <p>F. Data shall be organized into standard reporting formats for each method of analysis</p>	SW18-WP-AP-0014, R0	Y	Review of Batch Data Reports: 00-HSGS-003 ( <b>TAB-HSG1</b> ) 00-HSGS-005 ( <b>TAB-HSG2</b> )	Y	All elements met.

	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	G. All electronic and video data are stored to ensure that waste container, sample, and QC data are readily retrievable (Section B3-10a)					
13	<p>Are procedures in place to ensure that 100 percent of Batch Data Reports are subject to independent technical review by an individual qualified to review the data? The reviewer shall release the data through signature with an associated review checklist prior to characterization of the associated waste and shipment to the WIPP. The review shall ensure the following, as applicable:</p> <p>A. Data were generated according to the methods used (procedure and revision) and reported in the proper units</p> <p>B. Calculations have been verified by a valid calculation program, a spot check of verified calculation programs, and/or a 100 percent check of all hand calculations</p> <p>C. The data have been reviewed for transcription errors</p> <p>D. The testing, sampling, and analytical QA documentation for Batch Data Reports is complete and includes (as applicable) raw data, calculation records, chain-of-custody forms, calibration records, QC sample results, and originals or copies of gas sample canister tags</p> <p>E. All QC sample results are within established control limits and, if not, the data have been appropriately qualified</p> <p>F. Reporting flags were assigned correctly (Table B3-14)</p> <p>G. Sample holding times and preservation requirements were met or exceptions documented</p> <p>H. Radiography tapes are reviewed (independent observation) on a waste container basis at a minimum of once per testing batch or once per day of operation, whichever is less frequent. The radiography tape will be reviewed against the data on the radiography form to ensure that data are complete and correct</p> <p>I. Field sampling records are complete (B3-10a(1))</p>	SW18-WP-AP-0014, R0, Par 3.3	Y	Review of Batch Data Reports: 00-HSGS-003, Pp. 71-72 (ITR Review) ( <b>TAB-HSG1</b> ) 00-HSGS-005, Pp. 48-49 (ITR Review) ( <b>TAB-HSG2</b> )	Y	All elements met.
14	Are procedures in place to ensure that 100 percent of all Batch Data	SW18-WP-AP-0014,	Y	Review of Batch Data Reports:	Y	All elements met.

	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>Reports receive a technical supervisory signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following (as applicable):</p> <p>A. The data are technically reasonable based on the technique used</p> <p>B. All data have received independent technical review</p> <p>C. The testing, sampling, and analytical QA documentation for Batch Data Reports is complete and includes (as applicable) raw data, calculation record, chain-of-custody forms, calibration records, QC sample results, and originals or copies of gas sample canister tags</p> <p>D. Sample holding time requirements were met or exceptions documented</p> <p>E. Field Sampling records are complete (Section B3-10a(2))</p>	R0. Par 4.4		<p>00-HSGS-003, p. 73 (TS Review) (TAB-HSG1)</p> <p>00-HSGS-005, p. 50 (TS Review) (TAB-HSG2)</p>		
15	<p>Are procedures in place to ensure that 100 percent of all Batch Data Reports receive a QA Officer signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following (as applicable):</p> <p>A. Independent technical and technical supervisory review have been performed and documented through signature</p> <p>B. The QA documentation for Batch Data Reports is complete</p> <p>C. Sampling and QC checks have been properly performed and all QC criteria that have not been met have been documented</p> <p>D. QAOs have been met (Section B3-10a(3))</p>	SW18-WP-AP-0014 , R0. Par 4.6	Y	<p>Review of Batch Data Reports: 00-HSGS-003, p. 74 (QA Review) (TAB-HSG1) 00-HSGS-005, p. 51 (QA Review) (TAB-HSG2)</p>	Y	All elements met.
SAMPLE CONTROL						
16	<p>Are procedures in place to ensure that the site's sample handling and control program includes the following:</p> <p>A. Field documentation of samples, including point of origin, date of sample, container identification, sample type, analysis requested,</p>	SW15.7-SOP-CCCP-01. R1, Par 2.0 & Att 1	Y	<p>Observed sampling 11/14/00. Review of Batch Data Reports: 00-HSGS-003, p. 19-44 (COC Forms) (TAB-HSG1) 00-HSGS-005, p. 20-47 (COC</p>	Y	



	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	and chain-of-custody (COC) number  B. Labeling and/or tagging, including proper sample numbering, sample identification, sample date, sampling conditions, and analysis requested  C. COC control, including name of sample relinquisher, sample receiver, and date and time of sample transfer  D. Proper sample handling and preservation (Section B-4a(3))			Forms) (TAB-HSG2)		
17	Are procedures in place to ensure that the site's QAPjP or site-specific procedures include COC forms to control the sample from the point of origin to the final analysis result reporting? (Section B-4a(3))	SW15.7-SOP-CCCP-01, R1, Att 1	Y	Observed sampling 11/14/00 Review of Batch Data Reports: 00-HSGS-003, p. 19-44 (COC Forms) (TAB-HSG1) 00-HSGS-005, p. 20-47 (COC Forms) (TAB-HSG2)	Y	
DATA TRANSMITTAL						
18	Are procedures in place to ensure that the generator/storage site transmits Batch Data Reports by hard copy or electronic copy from the data generation level to the site project level after all data generation level validations are complete? If electronic, does the generator/storage site have a hard copy available on demand? (Section B-4a(6), B3-10a)	SW18-WP-AP-0014, R0	Y	Observed sampling on 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	Sampling Batch Data Reports are submitted as hardcopy to the project office via the records center.
RECORDS AND RECORD MANAGEMENT						
19	Are procedures in place to ensure that the generator/storage site's Batch Data Reports contain copies of non-conformance reports? (Tables B3-11 through B3-13)	WSRC-RP-99-01097, R1, Par B-4a(6)	Y	Review of Batch Data Report: 00-HSGS-003 (TAB-HSG1) Deficiency Notice 2000-PDR-26-0020 present and complete.	Y	
20	Are procedures in place to ensure that the generator/storage site uses approved formats for Batch Data Reports as provided in site-specific documentation? (Section B3-12a)	SW15.7-SOP-HSGS-01, R4	Y	Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	
21	Are procedures in place to ensure that the generator/storage site maintains records related to waste characterization sampling and analysis activities in the testing, sampling, or analytical facilities files or site project files? (Section B-4a(7))	SW15.7-SOP-HSGA-01, R5, Par 6	Y	Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	
	Are procedures in place to ensure that the contract laboratories forward					SRS does not use contract

	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
22	testing, sampling, and analytical records along with Batch Data Reports to the site project office for inclusion in the site project files? (Section B-4a(7))	N/A	N/A	N/A	N/A	laboratories.
23	Are procedures in place to ensure that the generator/storage site has raw data that are identifiable, legible, and provide documentary evidence of quality? (Section B-4a(7))	WSRC-RP-99-01097, R1. Par B-4a(7) SW18-WP-AP-0013, R0 SW18-WP-AP-0014, R0	Y	Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)  Reviewed analytical lab journals.	Y	All data requirements met.
REQUIRED AND SUPPLEMENTAL INFORMATION						
24	Have the following procedures been prepared: Procedures for confirming acceptable knowledge information through headspace gas sampling and analysis, visual examination and/or radiography, and homogeneous waste sampling and analysis (Section B4-2b)	SW15.7-SOP-HSGS-01, R4	Y	Verified use of current revisions of procedure SW15.7-SOP-HSGS-01, R4 during audit A-01-01	Y	
CONFIRMATION OF ACCEPTABLE KNOWLEDGE						
25	Does the generator site have written procedures for the confirmation of all acceptable knowledge information using headspace gas sampling and analysis, homogeneous waste sampling and analysis, radiography, and/or visual examination? Are these procedures developed for both retrievably stored and newly generated waste? (Section B4-3d)	SW15.7-SOP-HSGS-01, R4	Y	Verified use of current revisions of procedure SW15.7-SOP-HSGS-01, R4 during audit A-01-01	Y	
CRITERIA FOR ASSEMBLING ACCEPTABLE KNOWLEDGE RECORD DELINEATING THE WASTE STREAM						
26	Do site procedures ensure that headspace gas and solid/soil analytical data are used to confirm or reevaluate AK assignments concerning the presence or absence of F-listed solvents and concentration of applicable toxicity characteristic solvents? If a constituent is detected in headspace gas, the site must provide documentation to support any determination that organic constituents are associated with packaging materials, radiolysis, or other uses not consistent with solvent use. If the source of the detected F-listed solvents cannot be identified, the appropriate spent solvent hazardous waste code will be assigned to the waste stream.  If a constituent in a listed waste is present in solid/soil analytical results, the appropriate listed waste shall be added to the waste stream. F-listed waste assigned by acceptable knowledge shall not be removed based on confirmatory headspace gas or solids analysis. In the case of totals/TCLP analysis, do procedures reflect the allowance for concentration assessments, wherein sites may add or remove total/TCLP and non-toxic	SW15.7-SOP-HSGS-01, R4	Y	Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	

	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	F003 constituents found in headspace and solid/soil analyses? (Section B4-3d)					
<b>HEADSPACE GAS SAMPLING FREQUENCY</b>						
27	Are procedures in place to ensure that all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1)(i) and B-3a(1)(ii) will be allowed to equilibrate to sampling room temperature for 72 hours prior to sampling (18°C or higher) and that the drum ages specified in Section B1-1a of 142 days for debris waste and 225 days for homogeneous (S3000) and soil/gravel (S4000) wastes are met? Are procedures in place to ensure that equilibrium time and drum ages are documented? (Section B1-1a)	SW15.7-SOP-HSGS-01, R4, Par 2.0; SW15.7-SOP-CONT-01, R8, PAR 4.1.4	Y	Observed sampling 11/14/00. Review of Batch Data Reports: 00-HSGS-003, Pp. 5-18 (TAB-HSG1) 00-HSGS-005, Pp. 5-19 (TAB-HSG2) Reviewed waste container selection and preparation forms for drums in the building where sampling is performed. (TAB-HSG3)	Y	SRS samples all containers. Only drums with a DAC of >142 days are allowed in the building where sampling occurs.
<b>HEADSPACE GAS SAMPLING GENERAL REQUIREMENTS</b>						
28	Are procedures in place to ensure all containers of waste are properly vented through carbon composite filters or filters with equivalent VOC dispersion characteristics to ensure that gases are adequately vented and characteristic waste does not develop? (Section B-1c)	SW15.7-SOP-CONT-01, R8, PAR 4.1.4	Y	Observed sampling 11/14/00. Reviewed waste container selection and preparation forms for drums in the building where sampling is performed. (TAB-HSG3)	Y	Only drums with an approved filter are allowed in the building where sampling occurs.
29	Are procedures in place to ensure that the following gas sample container and holding time requirements are met:  A. The minimum sample volume for VOC sample collection is 250 ml (Note: a single 100 ml sample may be collected if the headspace is limited)  B. Holding temperatures shall be between 0°C and 40°C (Table B1-1, Section B1-1b)	SW18-WP-AP-0014, R0, Par 4.4	Y	Observed sampling 11/14/00. Observed sample storage area and stored samples 11/14/00.	Y	SRS uses 6L Silco canisters ONLY for sampling.
30	Are procedures in place to ensure that all sampling is performed in an appropriate radiation containment area? (Section B1-1a)	SW15.7-SOP-HSGS-01, R4, Par 2.0	Y	Observed sampling 11/14/00. Sampling performed in radiation containment area.	Y	
31	Are procedures in place to ensure that all headspace gas analyses utilize	SW15.7-SOP-HSGS-	Y	Observed sampling 11/14/00.	Y	SRS uses ONLY 6L Silco canisters.

	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	either SUMMA® or equivalent canisters or on-line integrated sampling/analysis systems? (Section B1-1a)	01, R4, Par 1.1		Observed sample storage area and stored samples 11/14/00.		
HEADSPACE GAS MANIFOLD SAMPLING						
32	<p>Are procedures, processes, and equipment in place to ensure that the following manifold sampling procedures are implemented:</p> <p>A. The sampling equipment is leak checked and cleaned upon first use and as needed</p> <p>B. The manifold and sample canisters are evacuated to 0.1 mm Hg prior to sample collection</p> <p>C. Cleaned and evacuated sample canisters are attached to the evacuated manifold before the manifold inlet valve is opened</p> <p>D. The manifold inlet valve is attached to a changeable filter connected to different sampling heads that are capable of punching through the metal lid of the drum or penetrating the carbon-composite filter</p> <p>E. Field blanks are collected using samples of room air collected in the sampling area in the immediate vicinity of the waste container (Note: field blanks for SUMMA7 canisters are collected directly into the canister)</p> <p>F. Manifold equipped with purge assembly that allows QC samples to be collected through all sampling components that affect compliance with QAOs</p> <p>G. The manifold internal volume is calculated and documented in a field logbook</p> <p>H. The volume of headspace gas collected as calculated by the canister volume and internal manifold volume is less than 10 percent of the available headspace volume when a volume estimate is available (Section B1-1a(1))</p>	N/A	N/A	N/A	N/A	SRS uses the direct canister method for sampling.
33	<p>Are procedures, processes, and equipment in place to ensure that the following manifold sample side conditions are met:</p> <p>A. The sampling head forms a leak-tight connection with the sampling manifold</p>	N/A	N/A	N/A	N/A	SRS uses the direct canister method for sampling.

	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>B. A flexible hose allowing movement of the sampling head from the purge assembly to the waste container</p> <p>C. Pressure sensors that are pneumatically connected to the manifold and can measure absolute pressure from 0.05 mm Hg to 1000 mm Hg with a resolution of 0.01 mm Hg at 0.05 mm Hg. The pressure sensors shall have an operating range of 15°C to 40°C</p> <p>D. Sufficient canister ports shall be available to allow simultaneous collection of headspace gas samples and duplicates for VOC analysis (if using SUMMA® canisters)</p> <p>E. Ports not occupied with sample canisters require a plug or VCR® valve to prevent ambient air from entering the system</p> <p>F. Ports shall have VCR® fittings for connection to the sample canisters</p> <p>G. Sample canisters are leak-free, stainless steel pressure vessels, with a Cr-Ni oxide SUMMA®-passivated interior surface or leak-proof canisters with equivalently inert surfaces, bellows valve, and a pressure/vacuum gauge. All canisters shall have VCR® fittings or connections to sampling and analytical equipment</p> <p>H. The pressure/vacuum gauge must be mounted on each manifold. The canister shall be helium-leak checked to <math>1.5 \times 10^{-7}</math> cc/s, have stainless steel construction, and be capable of tolerating temperatures to 125°C</p> <p>I. A dry vacuum pump capable of reducing the manifold pressure to 0.05 mm Hg (Note: If an oil vacuum pump is used, precautions such as a molecular sieve or cryogenic trap shall be used to prevent diffusion of oil vapors back into the manifold)</p> <p>J. A minimum distance between the needle and the valve that isolates the pump from the manifold</p> <p>K. If real time blanks are not available, the manifold shall be equipped with an OVA capable of detecting all analytes listed in Table B3-2 and capable of measuring total VOC concentrations below the lowest headspace gas VOC constituent PRQL</p> <p>(Section B1-1a(1))</p>					
34	Are procedures, processes, and equipment in place to ensure that the following manifold standard side conditions are met:	N/A	N/A	N/A	N/A	SRS uses the direct canister method

	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure</b> <b>since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>A. A cylinder of compressed zero air, helium, argon, or nitrogen gas that is hydrocarbon and CO<sub>2</sub> free air (only hydrocarbon and CO<sub>2</sub>-free gases required for Fourier Transform Infrared System (FTIRS)) certified by the manufacturer to contain less than one ppm total VOCs. The gas is used to clean the manifold between samples and to provide gas for the collection of equipment blanks and on-line blanks (<i>Note: a zero air generator may be used, provided a sample of air is collected and demonstrated to contain less than 1 ppm total VOCs and the air is humidified, except for FTIRS</i>)</p> <p>B. Cylinders of field-reference standard gases or on-line control sample gases (for evaluating the accuracy of the headspace gas sampling process) shall be certified by the manufacturer to contain analytes from Table B3-2 at known concentrations</p> <p>C. All cylinders of field-reference gases or on-line control sample gases shall be connected to flow-regulating devices</p> <p>D. A humidifier filled with ASTM Type II water, connected, and opened to the standard side of the manifold between the compressed gas cylinders and the purge assembly, if the FTIRS is not used. No humidifier if the FTIRS is used (<i>Note: Compressed gas may include water vapor between 1000 and 10000 ppmv in lieu of a humidifier</i>)</p> <p>E. The humidifier is off-line during system evacuation to prevent manifold flooding</p> <p>F. A purge assembly that allows the sampling head to be connected to the standard side of the manifold</p> <p>G. A flow-indicating device or pressure regulator that is connected downstream of the purge assembly to monitor the flow rate or pressure of gases through the purge assembly to ensure that excess flow is available to prevent ambient air from contaminating the QC samples</p> <p>(Section B1-1a(1))</p>					for sampling.
35	<p>Do procedures ensure that NIST-certified (or equivalent) ambient-pressure sensors are kept in the sampling area during sampling operations and have a sufficient measurement range for the expected ambient barometric pressures at a resolution of 1.0 mm Hg or less?</p> <p>(Section B1-1a(1))</p>	N/A	N/A	N/A	N/A	SRS uses the direct canister method for sampling.

	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
36	Do procedures ensure that the NIST-traceable (or equivalent) temperature sensor in the sampling location has a sufficient temperature range for the sampling location (18°C to 50°C) ? (Section B1-1a(1))	N/A	N/A	N/A	N/A	SRS uses the direct canister method for sampling.
DIRECT CANISTER SAMPLING						
37	Are procedures, processes, and equipment in place to ensure that the following operating conditions are in place for direct canister sampling:  A. Canisters are evacuated to 0.1 mm Hg prior to use and attached to a changeable filter connected to the sampling head  B. Sampling heads are capable of punching through the metal lid of the drums or penetrating a carbon composite filter  C. Field duplicates are collected in the same manner and at the same time as the original sample  D. Field blanks shall be samples of room air collected in the immediate vicinity of the waste drum sampling area prior to removal of the drum lid  E. Equipment blanks and field reference standards shall be collected using a purge assembly equivalent to the standard side of the manifold  F. Less than 10 percent of the headspace is withdrawn when a headspace estimate is available (Note: The volume withdrawn is the canister volume and the internal volume of the sampling head)  G. Each sample canister is equipped with a pressure/vacuum gauge capable of indicating leaks and sample collection volumes. The gauge shall be helium-leak tested to $1.5 \times 10^{-7}$ standard cc/s, have all stainless steel construction, and be capable of tolerating temperatures to 125°C  H. SUMMA® canisters or equivalent are used to collect samples (Section B1-1a(2))	SW15.7-SOP-HSGS-01, R4, Par 3 & 4	Y	Observed sampling 11/14/00.	Y	All elements met.
SAMPLING HEADS UNDER DRUM LIDS: SAMPLING THROUGH A CARBON FILTER						
38	Are procedures, processes, and equipment adequate to ensure that samples collected through a carbon filter meet the following requirements:  A. The lid of the drum's 90-mil poly liner shall contain a hole for	SW15.7-SOP-HSGS-01, R4, Par 4	Y	Observed sampling 11/14/00.	Y	All elements met.

	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure</b> <b>since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	venting to the drum  B. Non-vented drums are not sampled until an internal nonconformance report is prepared, submitted, and resolved in order to obtain a representative sample  C. The carbon-composite filter shall be sealed to prevent outside air from entering the drum  D. The sampling head for collecting drum headspace gas shall consist of a side-port needle, a filter to prevent particle contamination of the sample, and an adapter to connect the needle and filter  E. The sampling head is cleaned or replaced after each use  F. The housing of the carbon composite filter shall allow insertion of the sampling needle through the filter element into the drum headspace  G. The side port needle shall be used to reduce the potential for plugging  H. The purge assembly shall be modified for compatibility with the side port needle (Section B1-1a(3)(i))					
<b>SAMPLING HEADS UNDER DRUM LIDS: SAMPLING THROUGH THE DRUM LID</b>						
39	Are procedures in place to establish the criteria for sampling through the drum lid as opposed to sampling through a carbon composite filter? (Section B1-1a(3)(ii))	N/A	N/A	N/A	N/A	SRS used the direct canister method with a sideport needle inserted through the filter.
40	Are procedures, processes, and equipment adequate to ensure that samples collected through the drum lid meet the following requirements:  A. This method is used only if an airtight seal can be maintained  B. The drum lid shall be breached using a punch that forms an airtight seal between the drum lid and the manifold or direct canister  C. The seal between the drum lid and the sampling head shall be designed to minimize the intrusion of ambient air  D. All components of the drum-punch sampling system that come in contact with sample gases shall be purged with humidified zero air,	N/A	N/A	N/A	N/A	SRS used the direct canister method with a sideport needle inserted through the filter.



	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure</b> <b>since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>nitrogen, or helium prior to sample collection</p> <p>E. Equipment blanks and field reference standards shall be collected through all components of the punch that contact the headspace gas sample</p> <p>F. Pressure shall be applied to the punch until the drum lid has been breached</p> <p>G. Provisions shall be made to relieve drum pressure increases during drum-punch operations and during sealing of the drum-punch to the drum lid</p> <p>H. The lid of the drum's 90-mil poly liner shall contain a hole for venting to the drum</p> <p>I. If headspace-gas samples are collected prior to venting the 90-mil poly liner, the sample is not acceptable and a nonconformance report is prepared, submitted, and resolved</p> <p>J. During sampling, the drum's carbon-composite filter, if present, shall be sealed to prevent outside air from entering the drum</p> <p>K. A flow-indicating device or pressure regulator to verify flow of gases shall be pneumatically connected to the drum punch sampling assembly and operated in the same manner as the flow-indicating device used in the manifold system</p> <p>L. Equipment is used to adequately secure the drum-punch sampling system to the drum lid</p> <p>M. (Section B1-1a(3)(ii))</p>					
<b>QUALITY CONTROL SAMPLE COLLECTION</b>						
41	<p>Are procedures in place to ensure that the following QC sample requirements are met:</p> <p>A. Field QC samples are collected on a per sample batch basis for manifold and direct canister sampling. A sampling batch is defined as up to 20 samples collected within 14 days of the first sample (Section B1-1b)</p> <p>B. Field samples are collected on a per on-line batch basis for on-line sampling/analysis systems. An on-line batch is defined as the</p>	<p>A.-D.</p> <p>SW15.7-SOP-HSGS-01, R4, Appx 1</p>	<p>A.-D.</p> <p>Y</p>	<p>A.-D.</p> <p>Observed sampling 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (<b>TAB-HSG1</b>) 00-HSGS-005 (<b>TAB-HSG2</b>)</p>	<p>A.-D.</p> <p>Y</p>	<p>A.-D.</p> <p>All QC requirements met.</p>

	<p><b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b></p>	Procedure Documented		Objective Evidence, as applicable		<p><b>Comment</b> <b>(e.g., any change in procedure</b> <b>since last audit, etc.)</b></p>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>number of samples that are collected in a 12-hour period from the same on-line integrated sample/analysis system (Section B1-1b)</p> <p>C. For the manifold sampling method, equipment blanks are collected prior to sample collection on a per sampling batch basis or one per day, whichever is more frequent. Field blanks, field duplicates and field reference standards are collected prior to sample collection on a per sampling batch basis. (Section B1-1b(1), B1-1b(2), B1-1b(3), B1-1b(4))</p> <p>D. For the direct canister sampling method, field blanks and field duplicates are collected on a per sampling batch basis prior to sample collection, whereas equipment blanks and field reference samples are collected after equipment purchase, cleaning, and assembly. Field blanks may be used in lieu of equipment blanks. Field reference standard collection may be discontinued if the field reference standard results demonstrate the QAOs for accuracy (Section B1-1b(1), B1-1b(2), B1-1b(3), B1-1b(4))</p> <p>E. For the on-line integrated sampling analysis method, field blanks, equipment blanks, field duplicates, and field reference samples are collected on a per on-line batch basis. An on-line batch is defined as the number of headspace-gas samples collected within a 12-hour period using the same on-line integrated analysis system (Note: The on-line blank replaces the laboratory and equipment blanks, the on-line duplicate replaces the laboratory duplicate, and the on-line reference standard replaces the laboratory control sample.) (Section B1-1b)</p>	B., C., E. N/A	B., C., E. N/A	B., C., E. N/A	B., C., E. N/A	B., C., E. N/A. SRS uses the direct canister sampling method.
42	<p>Are procedures in place to ensure that field reference standards meet the following criteria:</p> <p>A. Field reference standards shall contain a minimum of 6 analytes listed in Table B3-2 at concentrations within a range of 10 and 100 ppmv and greater than the MDL for each compound</p> <p>B. Field reference standards shall be traceable to a nationally recognized standard (e.g., NIST), if available</p> <p>C. If commercial gases are used, they shall be accompanied by a Certificate of Analysis from the manufacturer and all field reference standards are traceable to certificates</p> <p>D. Commercial gases are not used past the manufacturer-specified</p>	<p>SP-SW-092, R0, Par 2.0; SP-SW-099, Par 2.0; WSRC-RP-99-01097, R1, Par B1-1b(3)</p>	Y	<p>Reviewed SRS report WSRC-TR-2000-00265, Testing and certification of Headspace Gas Sampling and Analysis Equipment, p. 11 of 33.</p>	Y	

	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	shelf life  E. Field reference samples are submitted blind to the laboratory at a frequency of one per sampling batch (Note: Field reference standard collection may be discontinued for direct canister method if QAO accuracy objectives are met) (Section B1-1b(3))					
43	Are procedures in place to ensure that field duplicate samples are collected sequentially and in accordance with Table B1-2? (Section B1-1b(4))	SW/15.7-SOP-HSGS-01, R4, Appx 1	Y	Observed sampling 11/14/00. Review of Batch Data Reports: 00-HSGS-003, Pp. 4 & 6 (TAB-HSG1) 00-HSGS-005, Pp. 4 & 6 (TAB-HSG2)	Y	
<b>SAMPLE EQUIPMENT CLEANING, TESTING, INSPECTION, AND MAINTENANCE</b>						
44	Are procedures in place to ensure that sample canisters are cleaned in accordance with the following specifications:  A. All sampling equipment components that contact headspace sample gases are constructed of relatively inert materials such as stainless steel or Teflon® (B1-1c)  B. The headspace sampling manifold and sample canisters are properly cleaned and leak-checked prior to each sampling event in accordance with or equivalent to TO-14 methodology (B1-1c)  C. SUMMA® canisters or equivalent are cleaned and certified on an equipment cleaning batch basis. An equipment batch is defined as the number of canisters cleaned together at one time using the same cleaning method (B1-1c(1))  D. The cleaning system consists of an optional oven and a vacuum manifold which uses a dry vacuum pump or a cryogenic trap backed by an oil sealed pump (B1-1c(1))  E. Prior to cleaning, a positive or negative pressure leak test shall be performed on all canisters. The duration of the leak test must be greater than or equal to the time it takes to collect a sample, but no greater than 24 hours (B1-1c(1))  F. Canisters that fail the leak check are checked for leaks, repaired, and reprocessed (B1-1c(1))	A.-H. SW/15.7-SOP-CCCP-01, R1, Par 1.1; SW/15.7-SOP-HSGS-01, R4, Par 4.4	A.-H. Y	A.-H. Observed SRS canister cleaning operation 11/14/00. Observed SRS sampling head cleaning 11/14/00.	A.-H. Y	A.-J. All elements met.

	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>G. One canister per equipment cleaning batch is filled with humid zero air or humid high purity nitrogen and analyzed for VOCs (B1-1c(1))</p> <p>H. An equipment cleaning batch is considered clean if VOC concentrations are less than or equal to 3 times the MDLs specified in Table B3-2 (B1-1c(1))</p> <p>I. Certified leak-free canisters are evacuated to 0.10 mm Hg or less for storage prior to shipment (B1-1c(1))</p> <p>J. Canister cleaning certification documentation is available at the cleaning facility, and the cleaning facility initiates canister tags (B1-1c(1))</p>	I. - J. SW15.7-SOP-CCCP-01, R1, Par 1.1	I. - J. Y	I. - J. Observed canister cleaning operation 11/14/00. Observed canister storage area and stored canisters 11/14/00.	I. - J. Y	
45	Are procedures in place to ensure that manifold pressure sensors and ambient air temperature sensors (if present) are certified prior to initial use and annually using NIST traceable, or equivalent, standards? In addition, OVAs (if used) shall be calibrated daily, prior to first use, or as necessary according to the manufacturer's specifications, using known certified calibration gases, and the balance of the OVA calibration gas is consistent with the manifold purge gas. (Section B1-1d)	N/A	N/A	N/A	N/A	SRS uses the direct canister method.
46	<p>Are procedures in place to ensure that sampling equipment is cleaned and leak checked using the following specifications:</p> <p>A. Surfaces of all headspace gas sampling equipment components that will come in contact with sample headspace gases are thoroughly inspected and cleaned prior to assembly (Section B1-1c(2))</p> <p>B. Manifolds and sampling heads shall be purged with humidified zero air, nitrogen, or helium and leak-checked after assembly (Section B1-1c(2))</p> <p>C. The cleaning shall be repeated if routine system cleaning is inadequate (Section B1-1c(2))</p> <p>D. Manifolds and associated sampling heads which are reused shall be cleaned and leak-checked according to procedures in EPA TO-14 after sample collection, field duplicate collection, field blank collection, and after the additional cleaning required for field reference samples. All manifold ports shall be capped or closed with valves (sample canisters may be attached as well) (Section B1-1c(3))</p>	<p>A., B., I. SW15.7-SOP-HSGS-01, R4, Par 4.4</p> <p>C. - H. N/A</p>	<p>A., B., I. Y</p> <p>C. - H. N/A</p>	<p>A., B., I. Observed sample assembly cleaning 11/14/00.</p> <p>C. - H. N/A</p>	<p>A., B., I. Y</p> <p>C. - H. N/A</p>	<p>C. - H. N/A. SRS uses the direct canister method for sampling.</p>

	TABLE B6-5 Headspace Gas Sampling and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>E. Manifolds are cleaned by heating the headspace sampling manifold to 150°C and periodically evacuating and flushing it with humidified zero air, nitrogen, or helium (Section B1-1c(3))</p> <p>F. Manifolds not in use are demonstrated as clean before storage with a positive pressure of high purity gas (i.e. zero air, nitrogen, or helium) in both the sampling and standard sides (Section B1-1c(3))</p> <p>G. Sampling is suspended and corrective actions taken if VOC limits have been exceeded or if a leak test fails (Section B1-1c(3))</p> <p>H. Sampling systems are cleaned after a field reference standard collection by installing a gas-tight connector in place of the sampling head, between the flexible hose and purge assembly. This allows the sample and standard sides to be flushed with humidified zero air, nitrogen, or helium in conjunction with heated pneumatic lines (Section B1-1c(4))</p> <p>I. Needles, adapters, and filters are cleaned in accordance with the EPA Method TO-14 procedures. Sample heads shall be discarded or cleaned according to Method TO-14. In addition, the needle and filter are also purged with zero air, nitrogen, or helium and capped for storage (Section B1-1c(5))</p>					
SAMPLE HANDLING AND CUSTODY						
47	Are procedures in place that adequately ensure that chain-of-custody forms are completed in a manner that meets accepted standards for legal defensibility and admissibility and that a copy is included in the QAPjP or site-specific procedures? (Section B1-4)	SW15.7-SOP-CCCP-01, R1, Att 1	Y	Observed sampling 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2) (COC forms)	Y	
48	<p>Do chain-of-custody forms specify documentation of the following information:</p> <p>A. Signature of individual initiating custody control, along with the date and time</p> <p>B. Documentation of sample numbers for each sample under custody</p> <p>C. Cross-reference of sample numbers to a specific event description that will consist of the following:</p> <p>1. Identify the sampler(s) through signature</p>	SW15.7-SOP-CCCP-01, R1, Att 1	Y	<p>Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2) (COC forms)</p> <p>See Attachment 1 Gas Sampling Chain of Custody Form for example.</p>	Y	

	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	2. Date and time of sample collection 3. Type/number containers for each sample 4. Sample matrix 5. Preservatives (if applicable) 6. Requested methods of analysis 7. Place/address of sample collection 8. Waste container number  D. For offsite shipping: 1. Method of shipping transfer 2. Responsible shipping organization or corporation 3. Associated air bill or lading number  E. Signature of custodians relinquishing and receiving custody, along with date and time of transfer  F. Description of final sample container disposition, along with signature of individual removing sample container from custody  G. Comment section  H. Documentation of discrepancies, breakage, or tampering (Section B1-4)	D. N/A	D. N/A	D. N/A	D. N/A	A. – C., E. – H. All elements met.          D. N/A. SRS hand-carries the sample directly from the sampling area to the analysis trailer. They do not perform offsite shipping.
49	Are procedures in place to ensure that all samples and sampling equipment is uniquely numbered? (Section B1-4)	SW15.7-SOP-HSGS-01, R4, Par 4.1	Y	Observed sampling 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	Canisters numbered SWXXX; sample needles numbered sequentially. Samples numbered MMDDYYSWXXX.
50	Do sample tags or labels contain the following information:  A. Sample ID number B. Sampler initials and organization C. Ambient temperature and pressure (for gas samples only) D. Sample description E. Requested analysis F. Date and time of collection	SW15.7-SOP-CCCP-01, R1, Att 1	Y	Observed sampling 11/14/00.	Y	All elements met.   Sample Chain of Custody forms (Att 1) used as sample tags.

	<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	G. QC designation (if applicable) (Section B1-4)					
51	Are procedures in place to ensure that all sampling equipment, canisters, and samples are identified with unique identification numbers that are traceable to equipment cleaning batches? (Section B1-4)	WSRC-RP-99-01097, R1, Par B1-4a(1)	Y	Examined equipment-cleaning processes.	Y	Sample Assembly Cleaning Batch Certification Data Sheets used for needle assemblies; canister cleaning journal used for canisters. All are traceable back to a cleaning batch.
52	Are procedures in place to ensure that waste containers and samples are sealed with intact custody seals and that one or more of the following custody conditions are met:  A. It is in the possession of an authorized individual  B. It is in the view of an authorized individual, after being in the possession of that individual  C. It is in the possession of an authorized individual, and access to the sample is controlled by locking or placement of signed custody seals that prevent undetected access  D. It is in a designated secure area, such as a controlled access location (Section B1-4)	SW15.7-SOP-CCCP-01, R1, Par 2.0	Y	Observed sampling and sample storage 11/14/00.	Y	Custody seals (TIDs) used when canisters are cleaned and applied following sampling. All conditions met for custody.
53	Are procedures in place to ensure that discrepant sample information, indications of damage, or indications of tampering are documented? (Section B1-4, B3-13)	SW15.7-SOP-CCCP-01, R1, Att 1	Y	Interviewed samplers and analyst. To date, no discrepancies have occurred.	Y	Discussions with SRS personnel show the required knowledge is present.
54	Are procedures in place to ensure that sample custody is maintained until the following conditions are met:  A. The Site Project Manager releases the sample, or  B. The sample is expended (Section B1-4, B3-10b(3))	SW15.7-SOP-CCCP-01, R1, Par 2.0  SW18-WP-AP-0003, R1	Y	Examined Site Project Manager's Batch Data Report Acceptance and Sample Release Form, 9/26/00 -- Last page of Batch Data Report 00-HSGA-003 (TAB-HSG4)	Y	
55	As applicable, are procedures in place to ensure that SUMMA7 canisters are packaged to prevent damage to the pressure gauge or associated connections by packaging in metal boxes with separate compartments or cardboard boxes with foam inserts? (Section B1-5)	N/A	N/A	N/A	N/A	SRS does not ship samples offsite. Sample canisters are hand-carried from the sampling area to the analysis trailer.
56	As applicable, are procedures in place to ensure that samples are	N/A	N/A	N/A	N/A	SRS does not ship samples offsite.

<b>TABLE B6-5</b> <b>Headspace Gas Sampling and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>		Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	packaged to prevent damage to the sample container and to maintain preservation temperature? (Section B1-5)					Sample canisters are hand-carried from the sampling area to the analysis trailer.
57	As applicable, are procedures in place to ensure that adequate cold packs are included in the DOT-approved sample shipping container to ensure that all temperature requirements are met? (Section B1-5)	N/A	N/A	N/A	N/A	SRS does not ship samples offsite. Sample canisters are hand-carried from the sampling area to the analysis trailer.
58	Are procedures in place to ensure that sample COC forms are secured for shipment to the inside of the sealed or locked shipping container lid and that samples and shipping containers are affixed with tamper proof seals or devices? (Section B1-5)	N/A	N/A	N/A	N/A	SRS does not ship samples offsite. Sample canisters are hand-carried from the sampling area to the analysis trailer.
59	Are procedures in place to ensure that all shipping containers contain appropriate blank samples to detect any VOC cross-contamination? (Section B1-5)	N/A	N/A	N/A	N/A	SRS does not ship samples offsite. Sample canisters are hand-carried from the sampling area to the analysis trailer.
<b>QUALITY ASSURANCE OBJECTIVES</b>						
60	Is documentation in place to ensure that headspace gas sampling will occur from the drum headspace for all drums or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1)? (Section B3-2)	SW15.7-SOP-HSGS-01, R4, Par 1.2	Y	Observed sampling 11/14/00. Review of Batch Data Reports: 00-HSGS-003 (TAB-HSG1) 00-HSGS-005 (TAB-HSG2)	Y	SRS samples the headspace of all drums.

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to determine whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.



**Table B6-6**  
**Headspace Gas Analysis and Data Generation Level Review Checklist**

	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequ ate? Y/N (Why?)	Item Reviewed	Adequ ate? Y/N	
WASTE STREAM IDENTIFICATION						
1	Are procedures in place to ensure that waste is characterized in lots and/or batches, if necessary? (Sampling batches of up to 20 samples collected within 14 days of the first sample, analytical batches of up to 20 samples received within 14 days of first sample receipt, and on-line batches collected within 12 hours and analyzed in accordance with the method requirement) (Section B-3, B3-3)	SW 12-WP-AP-0020, R0	Y	Review of Batch Data Report: 00-HSGA-003, (TAB-HSG4)	Y	
2	Do site documents ensure that all applicable waste characterization techniques specified in Attachment B are used by the generator/storage site to delineate the waste on a waste stream basis? (Section B-Introduction, B-1a)	SW 15.7-SOP-HSGA-01, R5	Y	Review of Batch Data Report: 00-HSGA-003, (TAB-HSG4)	Y	
UNACCEPTABLE WASTE						
3	<p>Are procedures in place to ensure that waste containers do not include the following prohibited waste:</p> <p>A. Liquid waste (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container. Total residual liquid in any payload container may not exceed 1 percent volume of that container)</p> <p>B. Non-radionuclide pyrophoric materials</p> <p>C. Hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes)</p> <p>D. Wastes incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes</p> <p>E. Wastes containing explosives or compressed gases</p> <p>F. Wastes with polychlorinated biphenyl (PCB) concentrations equal to or greater than 50 parts per million</p> <p>G. Wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)</p>					

	<b>TABLE B6-6</b> <b>Headspace Gas Analysis and Data Generation Level</b> <b>Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure</b> <b>since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>H. RH TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater)</p> <p>I. Any waste container that does not have VOC concentration values reported for the headspace</p> <p>J. Any waste container which has not undergone either radiographic or visual examination</p> <p>K. Any waste container from a waste stream which has not been preceded by an appropriate, certified Waste Stream Profile Form (see Section B-1d) (Section B-1c)</p>	I. SW15.7-SOP-HSGA-01, R5	I. Y	I. Review of Batch Data Report: 00-HSGA-003, (TAB-HSG4)	I. Y	
4	Are procedures in place to ensure that the generator/storage site uses radiography, visual examination, headspace gas sampling and analysis and, as applicable, homogeneous waste sampling and analysis, to confirm the absence of the prohibited waste listed above? (Section B-3, B-3c)	SW18-WP-AP-0020, R0	Y	Review of Batch Data Report: 00-HSGA-003, (TAB-HSG4)	Y	
<b>LABORATORY QUALIFICATION</b>						
5	Is documentation in place to ensure that the generator/storage site conducts analyses using laboratories that are qualified through participation in the Performance Demonstration Program (PDP) for headspace gas sampling and analysis and PDP homogeneous waste sampling and analysis? (Section B-3a(3), B3-2, B3-3, B3-5, B3-6, B3-7, & B3-8)	SW15.7-SOP-PDP-02, R2	Y	Review of memorandum CAO-NTWP:MRB 00-0580 UFC 5822, dated April 14, 2000. (TAB-HSG5)	Y	
6	Are procedures in place to ensure that the generator/storage site conducts analyses using laboratories that implement the analytical methods through laboratory-documented standard operating procedures (SOPs) that ensure that analytical QAOs are met? (Section B-3a(3))	SW15.7-SOP-HSGA-01, R5	Y	Observed analytical operations 11/14/00.	Y	
<b>GENERAL SAMPLING AND ANALYTICAL REQUIREMENTS</b>						
8	<p>Are procedures in place to ensure that headspace gas sampling and analysis shall be used to:</p> <p>A. Determine the types and concentrations of VOCs in the void volume of waste containers</p>	SW15.7-SOP-HSGA-01, R5	Y	<p>Observed sampling and analytical operations 11/14/00.</p> <p>Review of data packages 00-HSGS-003 (TAB-HSG1) &amp; 005</p>	Y	

	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequ ate? Y/N (Why?)	Item Reviewed	Adequ ate? Y/N	
	B. Ensure that there are no adverse worker or public health impacts  C. Compare VOC constituents to those assigned by acceptable knowledge and assign hazardous waste codes as warranted (Section B-3a(1))			(TAB-HSG2) and 00-HSGA-003 (TAB-HSG4)		B. Evaluation of public health impact is the responsibility of the WIPP.
9	Are procedures in place to ensure that each TRU mixed waste container or statistically selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in B-3a(1)(i) and B-3a(1)(ii) will be sampled and analyzed according to sampling protocols, equipment, and QA/QC methods as specified in Attachment B1? (Section B-3a(1))	SW15.7-SOP-HSGA-01, R5	Y	Observed analytical operations 11/14/00.  Review of data packages 00-HSGS-003 (TAB-HSG1) & 005 (TAB-HSG2) and 00-HSGA-003 (TAB-HSG4)	Y	SRS samples the headspace of each drum.
10	Are procedures in place to ensure that compounds not on the list of target analytes are reported as tentatively identified compounds (TICs) according to SW-846 TIC identification guidance and that the TICs will be added to the target headspace gas analyte list if they appear in the 20.4.1.200 NMAC (incorporating 40 CFR Part 261) Appendix VIII list and if they are detected in 25% of the samples from a given waste stream? (Section B-3a(1), B-3d, B3-1)	SW15.7-SOP-HSGA-01, R5, Appx 2	Y	Review of analytical data package 00-HSGA-003, p. 98100, 102, 110, 114, 116, 118, and 120. (TAB-HSG4)	Y	
11	Are procedures in place to ensure that the following characterization activities shall occur for newly generated wastes:  Acceptable knowledge for all wastes, with confirmatory:  A. Visual examination during packaging (using the VE technique) for all waste containers with second operator providing additional verification (Section B-3d(1))  B. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(1))  C. Total VOCs, SVOCs, and metals analyses for a selected number of homogeneous solids and soil/gravel waste containers for control charting purposes (annually thereafter), as specified in Attachment B2 (Section B-3d(1)(a))  D. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)	B. W15.7-SOP-HSGA-01, R5         D. SW15.7-SOP-HSGA-	B. Y         D.	B. Review of analytical data package 00-HSGA-003 (TAB-HSG4)      D. Review of analytical data	B. Y      D. Y	

	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
		01, R5, Att. 2	Y	package 00-HSGA-003 Att 2's, p. 95-120 (TAB-HSG4)		
12	<p>Are procedures in place to ensure that the following characterization activities shall occur for retrievably stored wastes:</p> <p>Acceptable knowledge for all wastes, with confirmatory:</p> <p>A. Visual examination or radiography for all waste containers (Section B-3d(2), B4-3d)</p> <p>B. Confirmatory visual examination of a statistically determined number of waste containers as specified in Attachment B2 (when radiography is performed) (Section B-3d(2))</p> <p>C. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(2))</p> <p>D. Total VOCs, SVOCs, and metals analyses for a statistically selected number of homogeneous solids and soil/gravel waste containers as specified in Attachment B2 (containers opened for sampling may be used to fulfill the visual examination requirements) (Section B-3d(2))</p> <p>E. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)</p>	<p>C. SW15.7-SOP-HSGA-01, R5</p> <p>E. SW15.7-SOP-HSGA-01, R5, App. 2</p>	<p>C. Y</p> <p>E. Y</p>	<p>C. Observed HSG analysis 11/14/00. Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)</p> <p>E. Review of Batch Data Report: 00-HSGA-003, p. 95-120 (TAB-HSG4)</p>	<p>C. Y</p> <p>E. Y</p>	<p>C. SRS samples and analyses headspace of each drum.</p>
13	<p>Are procedures in place to ensure that the following characterization activities shall occur for repackaged waste:</p> <p>Acceptable knowledge, with confirmatory:</p> <p>A. Visual examination during repackaging (using the VE technique) for all waste containers with second operator providing additional verification (Section B-3d(1))</p> <p>B. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(1))</p>	<p>B. SW15.7-SOP-HSGA-01, R5</p>	<p>B. Y</p>	<p>B. Observed HSG analysis 11/14/00; Review of analytical batch 00-HSGA-003 (TAB-</p>	<p>B. Y</p>	

	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequ ate? Y/N (Why?)	Item Reviewed	Adequ ate? Y/N	
	<p>C. Total VOCs, SVOCs, and metals analyses following either the retrievably stored or newly generated waste characterization process, whichever results in greater sampling requirements (Section B-3d(2))</p> <p>D. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)</p>	D. SW 15.7-SOP-HSGA-01, R5, Appx 2	D. Y	HSG4)  D. Review of Batch Data Report : 00-HSGA-003, p. 95-120 (TAB-HSG4)	D. Y	C. SRS samples and analyses the headspace of each drum.
DATA GENERATION, VERIFICATION, VALIDATION, DOCUMENTATION, AND QUALITY ASSURANCE						
14	<p>Are procedures in place to ensure that the following data quality objectives are met:</p> <p>Use headspace gas sampling and analysis to identify and quantify VOCs to ensure compliance with the environmental performance standards of 20.4.1.500 NMAC and to confirm hazardous waste identification by acceptable knowledge (Section B-4a(1))</p>	SW 15.7-SOP-HSGA-01, R5	Y	Observed analysis 11/14/00. Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)	Y	
15	<p>Are procedures in place to ensure that the following quality assurance objectives are adequately defined and assessed for each characterization method:</p> <p>A. Precision as a measure of the mutual agreement among multiple measurements</p> <p>B. Accuracy as the degree of agreement between a measurement result and a true or known value</p> <p>C. Completeness as a measure of the amount of valid data obtained from a method compared to the total amount of data obtained that is expressed as a percentage</p> <p>D. Comparability as the degree to which one data set can be compared to another data set</p> <p>(Section B-4a(2))</p>	WP-AP-0015, R0	Y	Review of Batch Data Report: 00-HSGA-003, p 270, (TAB-HSG4), Quality Assurance Officer Review Checklist questions 19, 20, 21, and 24.	Y	
16	With respect to data generation, are procedures in place to ensure that the generator/storage site's waste characterization program meets the following general requirements:					

	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>A. Batch Data Reports must be reported accurately in a pre-approved format, must be maintained in permanent files, and must be traceable (Section B-4(a), B-4a(7), B3-10a)</p> <p>B. All data must receive a technical review by another qualified analyst (Section B3-10a(1))</p> <p>C. All raw data must be reviewed and have the release signatures of a technical supervisor and a QA officer before release (Section B3-10a(2), B3-10a(3))</p>	<p>A. SW15.7-SOP-HSGA-01, R5, Appx 5</p> <p>B. SW18-WP-AP-0015, R0, Par 3.3</p> <p>C. SW18-WP-AP-0015, R0, Par 3.4</p>	<p>A. Y</p> <p>B. Y</p> <p>C. Y</p>	<p>Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4) ITR: 00-HSGA-003, p. 263-265 (TAB-HSG4) TSR: 00-HSGA-003, p. 266-267 (TAB-HSG4) QAR: 00-HSGA-003, P. 268-271 (TAB-HSG4)</p>	Y	
17	Are procedures in place to ensure that the generator/storage site performs data validation and verification of waste characterization data for each waste container? (Section B-4, B3-10)	SW18-WP-AP-0015, R0	Y	Review of Batch Data Report: 00-HSGA-003, p. 263-267 (review checklists) (TAB-HSG4)	Y	
18	Are procedures in place to ensure that the generator/storage site prepares analytical, testing, and sampling Batch Data Reports to meet the requirements of their own site-specific QAPJP and/or SOPs? (Section B-4a(4))	SW15.7-SOP-HSGA-01, R5, Appx 5	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)	Y	
19	<p>Are procedures in place to ensure that all raw data are collected and managed at the data generation level in accordance with the following criteria:</p> <p>A. All raw data shall be signed and dated in reproducible ink by the individual collecting the data, or signed and dated using electronic signatures</p> <p>B. All data shall be recorded clearly, legibly, and accurately in field and laboratory records and include all applicable sample identification numbers (for sampling and analytical labs)</p> <p>C. All changes to original data shall be lined out, initialed, and dated by the individual making the change. Original data may not be obliterated or otherwise be made unreadable. Data changes shall only be made by the individual who originally collected the data or an individual authorized to change the data</p> <p>D. All data shall be transferred and reduced from field and laboratory records completely and accurately</p>	SW18-WP-AP-0015, R0	Y	<p>Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)</p> <p>Review of analytical lab journals.</p>	Y	All elements met.

	<b>TABLE B6-6</b> <b>Headspace Gas Analysis and Data Generation Level</b> <b>Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure</b> <b>since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>E. All field and laboratory records shall be maintained as specified in Table B-7 of Attachment B</p> <p>F. Data shall be organized into standard reporting formats for each method of analysis</p> <p>G. All electronic and video data are stored to ensure that waste container, sample, and QC data are readily retrievable (Section B3-10a)</p>					
20	<p>Are procedures in place to ensure that 100 percent of Batch Data Reports are subject to independent technical review by an individual qualified to review the data? The reviewer shall release the data through signature with an associated review checklist prior to characterization of the associated waste and shipment to the WIPP. The review shall ensure the following, as applicable:</p> <p>A. Data were generated according to the methods used (procedure and revision) and reported in the proper units</p> <p>B. Calculations have been verified by a valid calculation program, a spot check of verified calculation programs, and/or a 100 percent check of all hand calculations</p> <p>C. The data have been reviewed for transcription errors</p> <p>D. The testing, sampling, and analytical QA documentation for Batch Data Reports is complete and includes (as applicable) raw data, calculation records, chain-of-custody forms, calibration records, QC sample results, and originals or copies of gas sample canister tags</p> <p>E. All QC sample results are within established control limits and, if not, the data have been appropriately qualified</p> <p>F. Reporting flags were assigned correctly (Table B3-14)</p> <p>G. Sample holding times and preservation requirements were met or exceptions documented</p> <p>H. Radiography tapes are reviewed (independent observation) on a waste container basis at a minimum of once per testing batch or once per day of operation, whichever is less frequent. The radiography tape will be reviewed against the data on the radiography form to ensure that data are complete and correct</p>	SW18-WP-AP-0015, R0. Par 3.3	Y	<p>Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)</p> <p>ITR: 00-HSGA-003, p. 263-265 (TAB-HSG4)</p>	Y	All elements met.



	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequ ate? Y/N (Why?)	Item Reviewed	Adequ ate? Y/N	
	I. Field sampling records are complete (B3-10a(1))					
21	Are procedures in place to ensure that 100 percent of all Batch Data Reports receive a technical supervisory signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following (as applicable):  A. The data are technically reasonable based on the technique used  B. All data have received independent technical review  C. The testing, sampling, and analytical QA documentation for Batch Data Reports is complete and includes (as applicable) raw data, calculation record, chain-of-custody forms, calibration records, QC sample results, and originals or copies of gas sample canister tags  D. Sample holding time requirements were met or exceptions documented  E. Field Sampling records are complete (Section B3-10a(2))	SW18-WP-AP-0015, R0. Par 4.4	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4) TSR: 00-HSGA-003, p. 266- 267 (TAB-HSG4)	Y	
22	Are procedures in place to ensure that 100 percent of all Batch Data Reports receive a QA Officer signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following (as applicable):  A. Independent technical and technical supervisory review have been performed and documented through signature  B. The QA documentation for Batch Data Reports is complete  C. Sampling and QC checks have been properly performed and all QC criteria that have not been met have been documented  D. QAOs have been met (Section B3-10a(3))	SW18-WP-AP-0015, R0. Par 4.6	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4) QAR: 00-HSGA-003, P. 268- 271 (TAB-HSG4)	Y	

	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequ ate? Y/N (Why?)	Item Reviewed	Adequ ate? Y/N	
DATA TRANSMITTAL						
23	Are procedures in place to ensure that the generator/storage site transmits Batch Data Reports by hard copy or electronic copy from the data generation level to the site project level after all data generation level validations are complete? If electronic, does the generator/storage site have a hard copy available on demand? (Section B-4a(6), B3-10a)	SW18-WP-AP-0007, R3 WP-AP-0015, R0	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)	Y	Sample Batch Data Reports are submitted as hard copy to the project office via the records center.
RECORDS AND RECORD MANAGEMENT						
24	Are procedures in place to ensure that the generator/storage site's Batch Data Reports contain copies of non-conformance reports? (Tables B3-11 through B3-13)	WSRC-RP-99-01097, R1, Par B-4a(6)	Y	1 deficiency, in 00-HSGS-003, p. 80-126 (TAB-HSG4)	Y	
25	Are procedures in place to ensure that the generator/storage site uses approved formats for Batch Data Reports as provided in site-specific documentation? (Section B3-12a)	SW15.7-SOP-HSGA-01, R5, Appx 5	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)	Y	
26	Are procedures in place to ensure that the generator/storage site maintains records related to waste characterization sampling and analysis activities in the testing, sampling, or analytical facilities files or site project files? (Section B-4a(7))	SW15.7-SOP-HSGA-01, R5, Par 6	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)	Y	
27	Are procedures in place to ensure that the contract laboratories forward testing, sampling, and analytical records along with Batch Data Reports to the site project office for inclusion in the site project files? (Section B-4a(7))	N/A	N/A	N/A	N/A	SRS does not use contract laboratories for HSG Analysis.
28	Are procedures in place to ensure that the generator/storage site has raw data that are identifiable, legible, and provide documentary evidence of quality? (Section B-4a(7))	WSRC-RP-99-01097, Par B-4a(7)	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4) Review of analytical lab Journals	Y	
REQUIRED AND SUPPLEMENTAL INFORMATION						
29	Have the following procedures been prepared: Procedures for confirming acceptable knowledge information through headspace gas sampling and analysis, visual examination and/or radiography, and homogeneous waste sampling and analysis (Section B4-2b)	SW15.7-SOP-HSGA-01, R5		Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)		
30	Has the generator site developed the following procedures, and are	N/A	N/A	N/A	N/A	SRS is only characterization

	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequ ate? Y/N (Why?)	Item Reviewed	Adequ ate? Y/N	
	these procedures technically sufficient: For newly generated waste, procedures shall be developed and implemented to characterize hazardous waste using acceptable knowledge prior to packaging (Section B4-3c)					retrievably stored waste at this time.
CONFIRMATION OF ACCEPTABLE KNOWLEDGE						
31	Does the generator site have written procedures for the confirmation of all acceptable knowledge information using headspace gas sampling and analysis, homogeneous waste sampling and analysis, radiography, and/or visual examination? Are these procedures developed for both retrievably stored and newly generated waste? (Section B4-3d)	SW15.7-SOP-HSGA-01, R5	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)	Y	
CRITERIA FOR ASSEMBLING ACCEPTABLE KNOWLEDGE RECORD DELINEATING THE WASTE STREAM						
32	Do site procedures ensure that headspace gas and solid/soil analytical data are used to confirm or reevaluate AK assignments concerning the presence or absence of F-listed solvents and concentration of applicable toxicity characteristic solvents? If a constituent is detected in headspace gas, the site must provide documentation to support any determination that organic constituents are associated with packaging materials, radiolysis, or other uses not consistent with solvent use. If the source of the detected F-listed solvents cannot be identified, the appropriate spent solvent hazardous waste code will be assigned to the waste stream.  If a constituent in a listed waste is present in solid/soil analytical results, the appropriate listed waste shall be added to the waste stream. F-listed waste assigned by acceptable knowledge shall not be removed based on confirmatory headspace gas or solids analysis. In the case of totals/TCLP analysis, do procedures reflect the allowance for concentration assessments, wherein sites may add or remove total/TCLP and non-toxic F003 constituents found in headspace and solid/soil analyses? (Section B4-3d)	SW15.7-SOP-HSGA-01, R5	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)	Y	
HEADSPACE GAS SAMPLING GENERAL REQUIREMENTS						
33	Are procedures in place to ensure that headspace gas samples are analyzed for the analytes listed in Table B3-2 of Attachment B3? (Section B1-1a)	SW15.7-SOP-HSGA-01, R5	Y	Review of Batch Data Report: 00-HSGA-003 (TAB-HSG4)	Y	
LABORATORY OPERATIONS						

	<b>TABLE B6-6</b> <b>Headspace Gas Analysis and Data Generation Level</b> <b>Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		<b>Comment</b> <b>(e.g., any change in procedure</b> <b>since last audit, etc.)</b>
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
34	<p>Are procedures in place to ensure that all VOC analyses are evaluated using the following criteria:</p> <p>A. Precision is assessed through evaluation of by analyzing laboratory duplicates and replicate analyses of laboratory-control samples (LCS) replicates, and PDP blind-audit samples in comparison to Table B3-3</p> <p>B. Accuracy is assessed through evaluation of LCS samples and blind PDP blind-audit samples in comparison to criteria in Table B3-3</p> <p>C. MDL's are expressed in nanograms/liter</p> <p>D. Laboratory completeness shall be expressed as the number of samples analyzed with valid results as a percent of the total number of samples collected submitted for analysis. (A composited sample is treated as one sample for the purposes of completeness.)</p> <p>E. Comparability shall be achieved through the use of standardized methods, through the consistent application of data useability criteria and traceable standards, and through successful participation in the PDP program</p> <p>F. Representativeness will be achieved by collecting sufficient numbers of samples using clean sampling equipment that does not introduce sample bias</p> <p>G. All method detection limits and program required detection limits shall be less than the program required detection limits listed in Table B3-2, and the detection limit study procedures shall be documented in laboratory SOPs. In addition, the laboratory shall demonstrate that they are capable of meeting the program required detection limits by analyzing at least one calibration standard below the PRQL</p> <p>(Section B3-5)</p>	SW18-WP-AP-0020, R0, Appx 2	Y	Review of Batch Data Report: 00-HSGA-003, p. 4 and 5 (TAB-HSG4)	Y	All elements met.
35	Are procedures in place to ensure that tentatively identified compounds (TICs) shall be added to the target analyte list if they are identified in 25% of the samples in accordance with SW-846 criteria for a given waste stream (with the exception of non-toxic F003 constituents) and if they appear in the 20.4.1.200 NMAC (incorporating 40 CFR '261) Appendix VIII list?	WSRC-RP-99-01097, R1, Par B3-2b, 1	Y	Review of Batch Data Report: 00-HSGA-003, p. 95-120 (TAB-HSG4)	Y	

	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequ ate? Y/N (Why?)	Item Reviewed	Adequ ate? Y/N	
	(Section B3-1)					
QUALITY ASSURANCE OBJECTIVES						
36	Is documentation in place to ensure that headspace gas sampling will occur from the drum headspace for all drums or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1)? (Section B3-2)	SW15.7-SOP-HSGS-01, R4	Y	Review of sampling Batch Data Reports 00-HSGS-003 (TAB-HSG1) & 005 (TAB-HSG2)	Y	SRS samples the headspace of all drums.
37	Are procedures in place to ensure that the precision of the headspace gas analysis is assessed by the sequential collection of field duplicates for manifold sampling operations or simultaneous collection of field duplicates for direct canister sampling operations for determination of VOCs? (Section B3-2)	SW15.7-SOP-HSGS-01, R4, Par 3 & 4	Y	Review of sampling Batch Data Reports 00-HSGS-003 (TAB-HSG1) & 005 (TAB-HSG2), p. 4 & 6	Y	
38	Are procedures in place to ensure that corrective action will be taken if the duplicate RPD for field duplicates exceeds 25 percent for any analyte found greater than the PRQL in both of the duplicate samples? (Section B3-2)	SW18-WP-AP-0020, R0, Appx 6	Y	Review of Batch Data Report: 00-HSGA-003, p. 10 (TAB-HSG4)	Y	
39	Are procedures in place to ensure that the accuracy of headspace gas analysis is assessed through the collection of field reference standards and field blanks at a frequency of one for every 20 drums sampled or per sampling batch and through the collection of equipment blanks at the frequency of one for every equipment cleaning batch? (Section B3-2)	SW18-WP-AP-0020, R0, Appx 6	Y	Review of Batch Data Report: 00-HSGA-003, p. 10 (TAB-HSG4)	Y	
40	Are procedures in place to ensure that corrective actions are taken if the %R of the field reference standard is less than 70% or greater than 130% and if the blank exceeds 3 times the MDLs listed for any of the compounds in Table B3-2? (Section B3-2)	SW18-WP-AP-0020, R0, Appx 6	Y	Review of Batch Data Report: 00-HSGA-003, p. 10 (TAB-HSG4)	Y	
41	Are procedures in place to ensure that sampling completeness shall be expressed as the number of valid samples collected as a percent of the total number of samples collected for each waste stream, where a valid sample is defined as a sample collected in accordance with approved sampling methods and the drum was properly prepared for sampling? (Section B3-2)	SW18-WP-AP-0014, R0	Y	Review of Batch Data Reports: 00-HSGS-003, p 74 (TAB-HSG1) 00-HSGS-005, p 51 (TAB-HSG2)	Y	
42	Are procedures in place to ensure that the minimum sampling completeness percentage for any waste stream is 90 percent? (Section B3-2)	SW18-WP-AP-0014, R0, Att 7.	Y	Review of Sampling Batch Data Reports 00-HSGS-003 p. 75 (TAB-HSG1) & 00-HSGS-005, P. 52 (TAB-HSG2)	Y	

	TABLE B6-6 Headspace Gas Analysis and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequ ate? Y/N (Why?)	Item Reviewed	Adequ ate? Y/N	
43	Are procedures in place to ensure that sample comparability is assured through the use and application of uniform procedures and equipment and application of data usability criteria? Corrective action is taken if uniform procedures, equipment, or operations are not followed without approved and justified deviations. (Section B3-2)	SW 15.7-SOP-HSGS-01, R4	Y	Observed analytical operations 11/14/00.	Y	
44	Are procedures in place to ensure that sample representativeness is maintained? (Section B3-2)	SW 15.7-SOP-HSGS-01, R4	Y	Observed sampling operations 11/14/00.	Y	
45	Are procedures in place to ensure that an analytical completeness rate of 90 percent is achieved for all VOC compounds in a waste stream? (Table B3-2)	WP-AP-0015, R0	Y	Review of Batch Data Report: 00-HSGA-003, p 270 (TAB-HSG4)		See CDA # 6

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to determine whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

**SRS (A-01-01)**

**Table B6-7**

**Radiography and Data Generation Level Review Checklist**

	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
WASTE STREAM IDENTIFICATION						
1	Does the generator/storage facility have procedures in place to ensure that the following waste analysis parameters will be characterized: Confirmation of physical form and exclusion of prohibited items (Section B-2)	SW15.7-SOP-RTR-01, R8, Par 1.1 & Att 3	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
2	Are procedures in place to ensure that waste streams identified to contain incompatible materials or materials incompatible with waste containers cannot be shipped unless treated to remove the incompatibility? (Section B-1c)	SW15.7-SOP-RTR-01, R8, Att 3; SW15.7-SOP-CONT- 01, R8	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
3	Are procedures in place to ensure that waste is characterized in lots and/or batches, if necessary? (Sampling batches of up to 20 samples collected within 14 days of the first sample, analytical batches of up to 20 samples received within 14 days of first sample receipt, and on-line batches collected within 12 hours and analyzed in accordance with the method requirement) (Section B-3, B3-3)	SW15.7-SOP-RTR-01, R8, Att 3	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
4	Do site documents ensure that all applicable waste characterization techniques specified in Attachment B are used by the generator/storage site to delineate the waste on a waste stream basis? (Section B-Introduction, B-1a)	SW18-WP-AP-0003, R1	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
UNACCEPTABLE WASTE						
5	Are procedures in place to ensure that waste containers do not include the following prohibited waste:  A. Liquid waste (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container. Total residual liquid in any payload container may not exceed 1 percent volume of that container)  B. Non-radionuclide pyrophoric materials  C. Hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes)	A. – G. SW15.7-SOP-RTR-01, R8, Att 3	A. – G. Y	A. – K. Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	A. – K. Y	



	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	<p>D. Wastes incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes</p> <p>E. Wastes containing explosives or compressed gases</p> <p>F. Wastes with polychlorinated biphenyl (PCB) concentrations equal to or greater than 50 parts per million</p> <p>G. Wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)</p> <p>H. RH TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater)</p> <p>I. Any waste container that does not have VOC concentration values reported for the headspace</p> <p>J. Any waste container which has not undergone either radiographic or visual examination</p> <p>K. Any waste container from a waste stream which has not been preceded by an appropriate, certified Waste Stream Profile Form (see Section B-1d)</p> <p>(Section B-1c)</p>	<p>H. SW15.7-SOP-CONT-01, R8</p> <p>I. SW18-WP-AP-0003, R1 SW18-WP-AP-0010, R1</p> <p>J. - K.  SW18-WP-AP-0003, R1; SW18-WP-AP-0010, R1</p>	<p>H. Y</p> <p>I. Y</p> <p>J. - K.  Y</p>			
6	Are procedures in place to ensure that the generator/storage site uses radiography, visual examination, headspace gas sampling and analysis and, as applicable, homogeneous waste sampling and analysis, to confirm the absence of the prohibited waste listed above? (Section B-3, B-3c)	SW15.7-SOP-RTR-01, R8	Y	Review of Batch Data Reports: RTR 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
7	Are procedures in place to ensure that radiography and/or visual examination are used to:  A. Examine every waste container to determine the physical form  B. Identify liquids and containerized gases  C. Verify the physical form matches the waste stream description (Section B-3c)	SW15.7-SOP-RTR-01, R8, Par 1.1 & Att 3	Y	Review of Batch Data Reports: RTR 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	

	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
DATA GENERATION, VERIFICATION, VALIDATION, DOCUMENTATION, AND QUALITY ASSURANCE						
8	Are procedures in place to ensure that the following data quality objectives are met:  Use radiography or visual examination to verify physical waste form, identify prohibited items, verify determination of sampling and analytical requirements, and to confirm waste stream delineation by acceptable knowledge (Section B-4a(1))	SW15.7-SOP-RTR-01, RR, Par 1.1 & Att 3	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
9	Are procedures in place to ensure that the following quality assurance objectives are adequately defined and assessed for each characterization method:  A. Precision as a measure of the mutual agreement among multiple measurements  B. Accuracy as the degree of agreement between a measurement result and a true or known value  C. Completeness as a measure of the amount of valid data obtained from a method compared to the total amount of data obtained that is expressed as a percentage  D. Comparability as the degree to which one data set can be compared to another data set (Section B-4a(2))	SW18-WP-AP-0017, R0	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
10	With respect to data generation, are procedures in place to ensure that the generator/storage site's waste characterization program meets the following general requirements:  A. Batch Data Reports must be reported accurately in a pre-approved format, must be maintained in permanent files, and must be traceable (Section B-4a(4), B-4a(7), B3-10a)  B. All data must receive a technical review by another qualified analyst (Section B3-10a(1))  C. All raw data must be reviewed and have the release signatures of a technical supervisor and a QA officer before release (Section B3-10a(2), B3-10a(3))	A. SW18-WP-AP-0007, R3 SW18-WP-AP-0017, R0  B. SW18-WP-AP-0017, R0  C. SW18-WP-AP-0017, R0	A. Y  B. Y  C. Y	A. – C.  Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	A.-C. Y	A. Formats are in accordance with CBFO-approved procedures.

	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
11	Are procedures in place to ensure that the generator/storage site performs data validation and verification of waste characterization data for each waste container? (Section B-4, B3-10)	SW18-WP-AP-0003, R1	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
12	Are procedures in place to ensure that the generator/storage site prepares analytical, testing, and sampling Batch Data Reports to meet the requirements of their own site-specific QAPIP and/or SOPs? (Section B-4a(4))	SW18-WP-AP-0017, R0	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
13	Are procedures in place to ensure that all raw data are collected and managed at the data generation level in accordance with the following criteria:  A. All raw data shall be signed and dated in reproducible ink by the individual collecting the data, or signed and dated using electronic signatures  B. All data shall be recorded clearly, legibly, and accurately in field and laboratory records and include all applicable sample identification numbers (for sampling and analytical labs)  C. All changes to original data shall be lined out, initialed, and dated by the individual making the change. Original data may not be obliterated or otherwise be made unreadable. Data changes shall only be made by the individual who originally collected the data or an individual authorized to change the data  D. All data shall be transferred and reduced from field and laboratory records completely and accurately  E. All field and laboratory records shall be maintained as specified in Table B-7 of Attachment B  F. Data shall be organized into standard reporting formats for each method of analysis  G. All electronic and video data are stored to ensure that waste container, sample, and QC data are readily retrievable (Section B3-10a)	A. - D. SW18-WP-AP-0017, R0          E. SW18-WP-AP-0007, R3, App 1  F. SW18-WP-AP-0017, R0  G. SW18-WP-AP-0007, R3	A. - D. Y          E. Y  F. Y  G. Y	A. - G.          Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	A. - G. Y	

	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
14	<p>Are procedures in place to ensure that 100 percent of Batch Data Reports are subject to independent technical review by an individual qualified to review the data? The reviewer shall release the data through signature with an associated review checklist prior to characterization of the associated waste and shipment to the WIPP. The review shall ensure the following, as applicable:</p> <p>A. Data were generated according to the methods used (procedure and revision) and reported in the proper units</p> <p>B. Calculations have been verified by a valid calculation program, a spot check of verified calculation programs, and/or a 100 percent check of all hand calculations</p> <p>C. The data have been reviewed for transcription errors</p> <p>D. The testing, sampling, and analytical QA documentation for Batch Data Reports is complete and includes (as applicable) raw data, calculation records, chain-of-custody forms, calibration records, QC sample results, and originals or copies of gas sample canister tags</p> <p>E. All QC sample results are within established control limits and, if not, the data have been appropriately qualified</p> <p>F. Reporting flags were assigned correctly (Table B3-14)</p> <p>G. Sample holding times and preservation requirements were met or exceptions documented</p> <p>H. Radiography tapes are reviewed (independent observation) on a waste container basis at a minimum of once per testing batch or once per day of operation, whichever is less frequent. The radiography tape will be reviewed against the data on the radiography form to ensure that data are complete and correct</p> <p>I. Field sampling records are complete (B3-10a(1))</p>	SW18-WP-AP-0017, R0	Y	<p>Review of Batch Data Reports: RTR 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)</p>	Y	
15	<p>Are procedures in place to ensure that 100 percent of all Batch Data Reports receive a technical supervisory signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following (as applicable):</p>	SW18-WP-AP-0017, R0	Y	<p>Review of Batch Data Reports: RTR 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)</p>	Y	

TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>		Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
<p>A. The data are technically reasonable based on the technique used</p> <p>B. All data have received independent technical review</p> <p>C. The testing, sampling, and analytical QA documentation for Batch Data Reports is complete and includes (as applicable) raw data, calculation record, chain-of-custody forms, calibration records, QC sample results, and originals or copies of gas sample canister tags</p> <p>D. Sample holding time requirements were met or exceptions documented</p> <p>E. Field Sampling records are complete (Section B3-10a(2))</p>						
16	<p>Are procedures in place to ensure that 100 percent of all Batch Data Reports receive a QA Officer signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following (as applicable):</p> <p>A. Independent technical and technical supervisory review have been performed and documented through signature</p> <p>B. The QA documentation for Batch Data Reports is complete</p> <p>C. Sampling and QC checks have been properly performed and all QC criteria that have not been met have been documented</p> <p>D. QAOs have been met (Section B3-10a(3))</p>	SW18-WP-AP-0017, R0	Y	<p>Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)</p>	Y	
DATA TRANSMITTAL						
17	<p>Are procedures in place to ensure that the generator/storage site transmits Batch Data Reports by hard copy or electronic copy from the data generation level to the site project level after all data generation level validations are complete? If electronic, does the generator/storage site have a hard copy available on demand? (Section B-4a(6), B3-10a)</p>	SW18-WP-AP-0017, R0	Y	<p>Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)</p>	Y	
RECORDS AND RECORD MANAGEMENT						

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	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
18	Are procedures in place to ensure that the generator/storage site's Batch Data Reports contain copies of non-conformance reports? (Tables B3-11 through B3-13)	SW18-WP-AP-0017, R0	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
19	Are procedures in place to ensure that the generator/storage site uses approved formats for Batch Data Reports as provided in site-specific documentation? (Section B3-12a)	SW18-WP-AP-0017, R0	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	Formats are in accordance with CAO-approved procedures.
20	Are procedures in place to ensure that the generator/storage site maintains records related to waste characterization sampling and analysis activities in the testing, sampling, or analytical facilities files or site project files? (Section B-4a(7))	SW18-WP-AP-0007, R3	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
21	Are procedures in place to ensure that the contract laboratories forward testing, sampling, and analytical records along with Batch Data Reports to the site project office for inclusion in the site project files? (Section B-4a(7))	N/A		N/A		External laboratories are not used by the SRS.
22	Are procedures in place to ensure that the generator/storage site has raw data that are identifiable, legible, and provide documentary evidence of quality? (Section B-4a(7))	SW18-WP-AP-0007, R3; SW18-WP-AP-0017, R0	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
REQUIRED AND SUPPLEMENTAL INFORMATION						

	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
23	Have the following procedures been prepared:  A. Procedures for confirming acceptable knowledge information through headspace gas sampling and analysis, visual examination and/or radiography, and homogeneous waste sampling and analysis  B. Procedures describing management controls used to ensure prohibited items (specified in the WAP, Permit Attachment B) are documented and managed  C. Procedures to ensure radiography and visual examination include a list of prohibited items that the operator shall verify are not present in each container of waste (liquids exceeding TSDF-WAC limits, corrosives, ignitables, reactives, and incompatible wastes) (Section B4-2b)	A. SW15.7-SOP-RTR-01, RR  B.-C. SW15.7-SOP-RTR-01, RR, Att 3	A. Y  B.-C. Y	A. - C. Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	A.-C. Y	
24	Has the generator site developed the following procedures, and are these procedures technically sufficient:  A. Sites must develop and implement a written procedure that ensures unacceptable wastes (e.g., reactive, ignitable, corrosive) are identified and segregated from TRU mixed waste populations sent to WIPP  B. For newly generated waste, procedures shall be developed and implemented to characterize hazardous waste using acceptable knowledge prior to packaging (Section B4-3b)	A. SW15.7-SOP-RTR-01, RR, Att 3  B. N/A	A. Y  B. N/A	A. Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)  B. N/A	A. Y  B. N/A	B. Newly generated wastes are not within the scope of the SRS program.
CONFIRMATION OF ACCEPTABLE KNOWLEDGE						
25	Does the generator site have written procedures for the confirmation of all acceptable knowledge information using headspace gas sampling and analysis, homogeneous waste sampling and analysis, radiography, and/or visual examination? Are these procedures developed for both retrievably stored and newly generated waste? (Section B4-3d)	SW15.7-SOP- RTR-01, R8	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	See CAR 01-003 (TAB-CAR1)  Homogeneous and newly generated wastes are not within the scope of the SRS program.
26	Do site procedures indicate that debris wastes are assigned toxicity characteristic EPA numbers based on AK? (Section B4-3d)	SW18-WP-AP-0002, R4, Par 4.4.1, last bullet	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2)	Y	See CAR 01-003 (TAB-CAR1)

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				00-RTR-003 (TAB-RTR3)		
CRITERIA FOR ASSEMBLING ACCEPTABLE KNOWLEDGE RECORD DELINEATING THE WASTE STREAM						
27	Do site documents state that radiography (or VE, if waste is newly generated) is used to confirm Waste Matrix Code and waste streams assigned to retrievably stored waste via AK? (Section B4-3d)	SW15.7-SOP-RTR-01, R8, Par 1.1	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
QUALITY ASSURANCE OBJECTIVES						
28	Are processes/procedures in place to meet the following quality assurance objectives:  A. <u>Precision</u> 1. Did the Site Project QA Officer calculate and report the relative percent difference (RPD) between the estimated waste material parameter (WMP) weights as determined by radiography and these same parameters as determined by visual examination (VE)?  2. Is the precision of radiography verified prior to use by tuning precisely enough to demonstrate compliance with QAOs through viewing an image test pattern?  B. <u>Accuracy</u> 1. Was the programmatic accuracy at which the Waste Matrix Code and WMP weights were determined documented through VE of a randomly selected statistical portion of waste containers?  2. Was the percentage of waste containers that require assignments to a different Waste Matrix Code or were found to contain prohibited items after VE as a measure of radiography accuracy calculated and reported by the Site Project QA Officer?	A. 1. SW15.7-SOP-TVEF-01, R3, Att 5  2. SW15.7-SOP-RTR-01, R8, Par 4.1.3.13  B. 1. SW18-WP-AP-0009, R1, Par 4.3 2. SW18-WP-AP-0009, R1, Par 4.4	A. Y          B. Y	A. Memo from M. Mason to WIPP Records Facility, dated 11/6/00, Re: Waste Material Parameter Weight Comparison Report, SWD-SWQ-2000-00XX. (TAB-RTR7)          B. Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)  <u>VE</u> 00-VE-002 (TAB-RTR8) 00-VE-009 (TAB-RTR9) 00-VE-012 (TAB-RTR10)  Reviewed Memos; (TAB-RTR11) Mike Mason to J. D'Amelio dated November 3, 2000; Lunsford to J. D'Amelio dated November 6, 2000; J. D'Amelio	A. Y          B. Y	Memos pertain to random selection of containers and misclassification rate.



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		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
				to G. Lunsford dated November 4, 2000		
	<p>C. <u>Completeness</u></p> <p>1. Was an audio/videotape (or equivalent media) of the radiography examination and a radiography data form validated according to the requirements in Section B3-10?</p> <p>2. Was an audio/videotape (or equivalent media) of the radiography examination and a validated radiography data form obtained for 100% of the retrievably stored waste containers?</p> <p>D. <u>Comparability</u> Is comparability ensured through the use of standardized radiography procedures and operator training and qualifications? (Section B1-3b)</p> <p>(Section B3-4)</p>	<p>C.</p> <p>SW18-WP-AP-0003, R1, Att 1 SW18-WP-AP-0017, R2, Att 4</p> <p>D.</p> <p>SW15.7-SOP-RTR-01, R8, Par 2.0.10</p>	<p>C. Y</p> <p>D. Y</p>	<p>C. – D. Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (<b>TAB-RTR1</b>) 00-RTR-002 (<b>TAB-RTR2</b>) 00-RTR-003 (<b>TAB-RTR3</b>)</p> <p>Witnessed VE operations including production of audio/videotape.</p> <p>Verified audio/video tapes for the Batch Data Reports were in the records center.</p>	<p>C.-D. Y</p>	
<b>CHARACTERIZATION AND SYSTEM REQUIREMENTS</b>						
29	Does the site have procedures to ensure that radiography is used to verify the Waste Matrix Code (physical form), estimate waste material parameter weights, and identify prohibited items for each waste container of retrievably stored waste? (Section B-3c, B3-4)	SW15.7-SOP-RTR-01, R8, Att 3	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 ( <b>TAB-RTR1</b> ) 00-RTR-002 ( <b>TAB-RTR2</b> ) 00-RTR-003 ( <b>TAB-RTR3</b> )	Y	
30	Do procedures or other supporting documentation ensure that <u>every</u> waste container will undergo radiography and/or VE? (Section B-3c)	SW15.7-SOP-RTR-01, R8, Par 1.1; SW18-WP-AP-0003, R1	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 ( <b>TAB-RTR1</b> ) 00-RTR-002 ( <b>TAB-RTR2</b> ) 00-RTR-003 ( <b>TAB-RTR3</b> )	Y	
31	Do procedures ensure that containers with lead liners are examined by visual examination rather than by radiography? (Section B1-3a)	SW15.7-SOP-RTR-01, R8, Par 2.0.6 & 4.2.1.35	Y	N/A	N/A	No drums with lead liners have been encountered. Interviews with operators indicated that they understood the requirement.
32	Are there procedures to ensure that the data obtained from an audio/videotaped scan are provided by trained radiography operators? (Section B1-3b)	SW15.7-SOP-RTR-01, R8, Par 2.0.10	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets,	Y	

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	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
				and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)		
33	Were all activities required to achieve the radiography objectives described in site Quality Assurance Project Plans (QAPjPs) and Standard Operating Procedures (SOPs)? (Section B3-4)	SW15.7-SOP-RTR-01, R8; SW18-WP-AP-0017, R0, Att 6	Y	Review of Batch Data Reports: RTR 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
34	Did the radiography system consist of the following equipment or equivalent:  A. An X-ray producing device  B. An imaging system  C. An enclosure for radiation protection  D. A waste container handling system  E. An audio/video recording system or equivalent  F. An operator control and data acquisition station (Section B1-3a)	SW15.7-SOP-RTR- 01, R8, Par 4.1.2	Y	Observed during Audit A-01-01.	Y	
35	Did the X-ray producing device have controls which allow the operator to vary voltage, thereby controlling image quality? Was it possible to vary the voltage, typically between 150 and 400 kV, to provide an optimum degree of penetration through the waste?  Was high-density material examined with the X-ray device set on the maximum voltage?  Was low-density material examined at lower voltage settings to improve contrast and image definition? (Section B1-3a)	SW15.7-SOP-RTR- 01, R8, Par 4.1.3.13 & Par 4.2.1.27	Y	Observed during Audit A-01-01.	Y	
36	Do procedures or other documentation ensure that an audio/videotape or equivalent is made of the waste container scan and is maintained as a non-permanent record? (Section B1-3a)	SW15.7-SOP-RTR-01, R8, Par 6.0; SW18-WP-AP-0007, R3	Y	Review of Batch Data Reports: RTR 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	

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TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>		Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
DATA COMPILATION						
37	Are there procedures to ensure that a radiography data form is used to document the Waste Matrix Code and estimated WMP weights of the waste? (Section B1-3a)	SW15.7-SOP-RTR-01, R8, Att 3	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
38	Do procedures/processes ensure that the estimated WMP weights are determined by compiling an inventory of waste items, residual materials, and packaging materials? Were the items on the inventory sorted by WMP and combined with a standard weight look-up table to provide an estimate of WMP weights? (Section B1-3a)	SW15.7-SOP-RTR-01, R8, App 2 & 3, & Att 3	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
39	If radiography and/or VE indicates that the waste does not match the waste stream description, do procedures ensure that the appropriate corrective action was taken? (Section B-3c)	SW15.7-SOP-RTR-01, R8, Par 4.2.1.36.4 ; SW15.7-SOP-CONT- 01, R8	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
40	Do site procedures ensure that the site prepares a separate radiography data form for each waste container in the testing? (Section B1-3a)	SW15.7-SOP-RTR-01, R8, Par 4.2.1.6; SW18-WP-AP-0017, R0, Att 4	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
TRAINING						
41	Do site procedures ensure that only trained personnel are allowed to operate radiography equipment? (Section B1-3b)	SW15.7- SOP-RTR- 01, R8, Par 2.0.10; NDE Qual. Std; ZET10018.Q000; SWD-SWT-98-0058	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
42	Do site procedures ensure that training requirements for radiography operators comply with the training requirements of the WAP? (Section B1-3b)	SW15.7-SOP-RTR-01, R8, Par 2.0.10; NDE Qual. Std; ZET10018.Q000; SWD-SWT-98-0058	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4)	Y	

	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
				K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)		
43	Does the documented training program provide radiography operators with both formal and on-the-job training (OJT)? (Section B1-3b)	SW15.7-SOP-RTR-01, R8, Par 2.0.10; NDE Qual. Std. ZET10018.Q000; SWD-SWT-98-0058	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
44	Does the documented training program ensure that the radiography operators are instructed in the specific waste generating practices, typical packaging configurations, and associated waste material parameters expected to be found in each Waste Matrix Code at the site? (Section B1-3b)	SW15.7-SOP-RTR-01, R8, Par 2.0.10; NDE Qual. Std. ZET10018.Q000 SWD-SWT-98-0058	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
45	Does the documented training program ensure that the OJT and apprenticeship are conducted by an experienced, qualified radiography operator prior to qualification of the training candidate? (Section B1-3b)	SW15.7-SOP-RTR-01, R8, Par 2.0.10; NDE Qual. Std; ZET10018.Q000 SWD-SWT-98-0058	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
46	Does the documented training program contain the following:  A. <u>Formal Training</u> 1. Project Requirements 2. State and Federal Regulations 3. Basic Principles of Radiography 4. Radiographic Image Quality 5. Radiographic Scanning Techniques 6. Application Techniques 7. Radiography of Waste Forms 8. Standards, Codes, and Procedures for Radiography 9. Site-Specific Instruction (Section B1-3b(1))  B. <u>On-the-Job Training</u>	SW15.7-SOP-RTR-01, R8, Par 2.0.10; NDE Qual. Std; ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	

	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	1. System Operation 2. Identification of Packaging Configurations 3. Identification of WMPs 4. Weight and Volume Estimation 5. Identification of Prohibited Items (Section B1-3b(2))					
47	Does the documented training program ensure that the radiography test drums include items common to the specific waste streams to be generated/stored at the generator/storage site? (Section B1-3b(2))	SW15.7-INSP-NDE-01, R2, Par 1.2 NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) Meers (TAB-RTR6)  Examined videotapes of test drums	Y	
48	Does the documented training program ensure that the test drums are divided into layers with varying packing densities or that different drums were used to represent different situations that may occur during radiography examination at the site? (Section B1-3b(2))	SW15.7-INSP-NDE-01, R2, Par 4.1.3.e Note: NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) Meers (TAB-RTR6)  Examined videotapes of test drums	Y	
49	Does the documented training program ensure that test drums are available that are representative of the Waste Matrix Codes for which Waste Stream Profile Form approval is sought and that representative test drums are successfully examined prior to waste stream shipment? (Section B1-3b(2))	SW15.7-INSP-NDE-01, R2, Par 1.2 and Att 1: NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)  Examined videotapes of test drums	Y	The test drum was representative of debris. SRS is currently only characterizing debris.

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	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
50	Does the documented training program ensure that the radiography test drums include the following required elements:  A. Aerosol can with puncture B. Horsetail bag C. Pair of coveralls D. Empty bottle E. Irregular shaped pieces of wood F. Empty one gallon paint can G. Full container H. Aerosol can with fluid I. One gallon bottle with three tablespoons of fluid J. One gallon bottle with one cup of fluid (upside down) K. Leaded glove or leaded apron L. Wrench (Section B1-3b(2))	SW15.7-SOP-NDE-01, R2. Par 4.1.3.b; NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	All required elements were present
51	Does the documented training program ensure that the required elements of the test drum are successfully identified by the operator as part of the qualification process and that results are documented? (Section B1-3b(2))	SW15.7-SOP-RTR-01, R8. Par 2.0.10; NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
52	Does the documented training program ensure that the qualification of the radiography operators, at a minimum, encompasses the following requirements:  A. Successfully pass a comprehensive exam based upon training enabling objectives  B. Perform practical capability demonstration in the presence of appointed site radiography subject matter expert (SME)? A radiography SME is an experienced radiography operator who is qualified as an OJT trainer (Section B1-3b(2))	SW15.7-SOP-RTR-01, R8. Par 2.0.10; NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
53	Does the documented training program ensure that requalification of operators is performed every two years at a minimum? (Section B1-3b(2))	SW15.7-SOP-RTR-01, R8. Par 2.0.10; NDE Qual. Std. ZET10018.Q000	Y	E Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications	Y	

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	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
				for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)		
54	Does the documented training program ensure that requalification of operators is based upon evidence of continued satisfactory performance (primary audio/videotape or equivalent media reviews)? (Section B1-3b(2))	SW15.7-SOP-RTR-01, R8, Par 2.0.10; NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
55	Does the documented training program ensure that if performance is determined to be unsatisfactory (the misidentification of a prohibited item or a score of <80% on the comprehensive exam), unsatisfactory performance results in disqualification? Did the disqualified operator go through retraining and was satisfactory performance demonstrated before an operator was again allowed to operate the radiography system? (Section B1-3b(2))	SW15.7-SOP-RTR-01, R8, Par 2.0.10; NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
56	Does the documented training program ensure that a training drum with various container sizes is scanned by each operator on a biannual basis? Is the videotape or equivalent media reviewed by a supervisor to ensure that operators' interpretations remain consistent and accurate? (Section B1-3b(2))	SW15.7-SOP-RTR-01, R8, Par 2.0.10; NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
57	Does the documented training program ensure that the imaging system characteristics are verified on a routine basis? (Section B1-3b(2))	SW15.7-SOP-RTR-01, R8, Par 2.0.10; NDE Qual. Std. ZET10018.Q000	Y	Examined Operator Training Records, including Qualification cards, test drum (NDE) sheets, and SNT-TC-1A Qualifications for: R. Morgan (TAB-RTR4) K. Brown (TAB-RTR5) B. Meers (TAB-RTR6)	Y	
QUALITY ASSURANCE						
58	Do procedures ensure that independent replicate scans and replicate	SW15.7-SOP-RTR-01,	Y	Review of Batch Data Reports:		

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	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	observations of the video output of the radiography process are performed under uniform conditions and procedures? Are independent replicate scans performed on one waste container per day or once per testing batch of up to 20 samples, whichever is less frequent?  Are independent observations of one scan (not the replicate scan) performed once per day or once per testing batch, whichever is less frequent, by a qualified radiography operator other than the individual who performed the first examination? (Section B1-3b(2))	R8. Par 4.3.1 & 4.3.2; SW18-WP-AP-0017, R0. Att 4, 5, & 6		RTR 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
59	Do procedures ensure that oversight functions, including periodic audio/videotape (or equivalent media) reviews of accepted waste containers, are performed by qualified radiography personnel other than the operator who dispositioned the waste container? (Section B1-3b(2))	SW15.7-SOP-RTR-01, R8. Par 4.3.1 & 4.3.2; SW18-WP-AP-0017, R0. Att 4, 5, & 6	Y	Review of Batch Data Reports: RTR 00-RTR-001 (TAB-RTR1) 00-RTR-002 (TAB-RTR2) 00-RTR-003 (TAB-RTR3)	Y	
60	Do procedures ensure that the radiography operators have access to the visual examination results? (Section B1-3b(2))	SW15.7-SOP-TVEF- 01, R3, Par 4.5.8 & Att 5; SW18-WP-AP-0009, R1	Y	Memorandum from M. Mason to WIPP Records, SWD-SWQ- 2000-00XX (TAB-RTR7)	Y	This memorandum contains the waste material parameter weight comparison information. The memorandum was cc'ed to B. Mears, SRS RTR lead.
<b>EQUIPMENT TESTING AND MAINTENANCE</b>						
61	Is the precision of radiography verified prior to use by tuning precisely enough to demonstrate compliance with QAOs through viewing an image test pattern? (Section B3-4)	SW15.7-SOP-RTR-01, R8. Par 4.1.3.13 & Att 1	Y	Observed during Audit A-01-01.	Y	
<b>DATA VALIDATION, REVIEW, VERIFICATION, AND REPORTING</b>						
62	Do procedures ensure that the generator data meet all applicable requirements for data collection and management as specified in B3-10a? (B3-10a)  With the exception of identifying items or conditions that could pose a hazard, the radiography results are not made available to visual examination personnel until after the visual examination is completed. (Section B1-3b(3))	SW18-WP-AP-0017, R0; SW15.7-SOP-RTR-01, R8. Par 2.0.11	Y	Review of Batch Data Reports: RTR 00-RTR-001 00-RTR-002 00-RTR-003	Y	
63	Do procedures ensure that all applicable data generation review, verification, and validation activities specified in B3-10 are followed, including all signatory releases? (Section B3-10a)	SW18-WP-AP-0017, R0. Att 4, 5, and 6	Y	Review of Batch Data Reports: RTR 00-RTR-001 00-RTR-002 00-RTR-003	Y	



	TABLE B6-7 Radiography and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
64	Do procedures ensure that radiography tapes have been reviewed (independent observation) on a waste container basis, at a minimum of once per testing batch or once per day of operation, whichever is less frequent, against the data reported on the radiography form to ensure that data are correct and complete? (Section B3-10a(1))	SW18-WP-AP-0017, R0, Att 4, 5, and 6	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 00-RTR-002 00-RTR-003	Y	
65	Do procedures ensure that the site submit Batch Data Reports for each waste container? Do these forms go to the site project office? Do they use approved formats? (Section B3-12a)	SW18-WP-AP-0017, R0, Par 4.7	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 00-RTR-002 00-RTR-003	Y	
66	At the data generation level, do procedures ensure that all electronic and video data are stored appropriately to ensure that waste container, sample, and associated QC data are readily retrievable? (Section B3-10a)	SW18-WP-AP-0017, R0, Att 4	Y	Review of Batch Data Reports: <u>RTR</u> 00-RTR-001 00-RTR-002 00-RTR-003	Y	Verified that the Batch Data Reports and associated videotapes were properly stored in the records center

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to determine whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

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**Table B6-8**

**Visual Examination (QC Check on RTR) and Data Generation Level Review Checklist**

	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate ? Y/N	
WASTE STREAM IDENTIFICATION						
1	Does the generator/storage facility have procedures in place to ensure that the following waste analysis parameters will be characterized: Confirmation of physical form and exclusion of prohibited items (Section B-2)	SW15.7-SOP-TVEF-01, R3, Par 1.1	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
2	Are procedures in place to ensure that waste streams identified to contain incompatible materials or materials incompatible with waste containers cannot be shipped unless treated to remove the incompatibility? (Section B-1c)	SW15.7-SOP-TVEF-01, R3, Att 4; SW15.7-SOP-CONT-01, R8	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
3	Are procedures in place to ensure that waste is characterized in lots and/or batches, if necessary? (Sampling batches of up to 20 samples collected within 14 days of the first sample, analytical batches of up to 20 samples received within 14 days of first sample receipt, and on-line batches collected within 12 hours and analyzed in accordance with the method requirement) (Section B-3, B3-3)	SW18-WP-AP-00016, R0, Par 1.1 & 4.7, & Appx 1	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
4	Do site documents ensure that all applicable waste characterization techniques specified in Attachment B are used by the generator/storage site to delineate the waste on a waste stream basis? (Section B-Introduction, B-1a)	SW18-WP-AP-0002, R4	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
UNACCEPTABLE WASTE						
5	Are procedures in place to ensure that waste containers do not include the following prohibited waste:  A. Liquid waste (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container. Total residual liquid in any payload container may not exceed 1 percent volume of that container)	A.-G. SW15.7-SOP-TVEF-01, R3, Att 4	A.-G. Y	A.-G. Review of Batch Data Reports: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	A.-G. Y	

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	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	<p>B. Non-radionuclide pyrophoric materials</p> <p>C. Hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes)</p> <p>D. Wastes incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes</p> <p>E. Wastes containing explosives or compressed gases</p> <p>F. Wastes with polychlorinated biphenyl (PCB) concentrations equal to or greater than 50 parts per million</p> <p>G. Wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)</p> <p>H. RH TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater)</p> <p>I. Any waste container that does not have VOC concentration values reported for the headspace</p> <p>J. Any waste container which has not undergone either radiographic or visual examination</p> <p>K. Any waste container from a waste stream which has not been preceded by an appropriate, certified Waste Stream Profile Form (see Section B-1d)</p> <p>(Section B-1c)</p>	<p>H. SW15.7-SOP-CONT-01, R8</p> <p>I. - K. SW18-WP-AP-0003, R1 SW18-WP-AP-0010, R1</p>	<p>H. Y</p> <p>I. - K. Y</p>	<p>I.-K. Review of Batch Data Reports: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)</p>	<p>H. Y</p> <p>I. - K. Y</p>	<p>H. Remote handled containers are not within the program's scope</p>
6	Are procedures in place to ensure that the generator/storage site uses radiography, visual examination, headspace gas sampling and analysis and, as applicable, homogeneous waste sampling and analysis, to confirm the absence of the prohibited waste listed above? (Section B-3, B-3c)	SW15.7-SOP-TVEF-01, R3	Y	Review of Batch Data Reports: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	Homogeneous wastes are not within the scope of the SRS.
7	Are procedures in place to ensure that radiography and/or visual examination are used to:  A. Examine every waste container to determine the physical form  B. Identify liquids and containerized gases	SW15.7-SOP-RTR-01, R8, Par 1.1 & Att 3 SW15.7-SOP-TVEF-01, R3	Y	Review of Batch Data Reports: VE 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	

	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	C. Verify the physical form matches the waste stream description (Section B-3c)					
8	<p>Are procedures in place to ensure that the following characterization activities shall occur for newly generated wastes:</p> <p>Acceptable knowledge for all wastes, with confirmatory:</p> <p>A. Visual examination during packaging (using the VE technique) for all waste containers with second operator providing additional verification (Section B-3d(1))</p> <p>B. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(1))</p> <p>C. Total VOCs, SVOCs, and metals analyses for a selected number of homogeneous solids and soil/gravel waste containers for control charting purposes (annually thereafter), as specified in Attachment B2 (Section B-3d(1)(a))</p> <p>D. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)</p>	N/A	N/A	N/A	N/A	Newly generated wastes are not within the scope of the SRS program
9	<p>Are procedures in place to ensure that the following characterization activities shall occur for retrievably stored wastes:</p> <p>Acceptable knowledge for all wastes, with confirmatory:</p> <p>A. Visual examination or radiography for all waste containers (Section B-3d(2), B4-3d)</p> <p>B. Confirmatory visual examination of a statistically determined number of waste containers as specified in Attachment B2 (when radiography is performed) (Section B-3d(2))</p> <p>C. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for</p>	SW15.7-SOP-TVEF-01, R3; SW18-WP-AP-0009, R1, Par 4.3	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	

	<b>TABLE B6-8</b> <b>VE (QC Check on RTR) and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate ? Y/N	
	reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(2))  D. Total VOCs, SVOCs, and metals analyses for a statistically selected number of homogeneous solids and soil/gravel waste containers as specified in Attachment B2 (containers opened for sampling may be used to fulfill the visual examination requirements) (Section B-3d(2))  E. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)					
10	Are procedures in place to ensure that the following characterization activities shall occur for repackaged waste:  Acceptable knowledge, with confirmatory:  A. Visual examination during repackaging (using the VE technique) for all waste containers with second operator providing additional verification (Section B-3d(1))  B. Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) (Section B-3d(1))  C. Total VOCs, SVOCs, and metals analyses following either the retrievably stored or newly generated waste characterization process, whichever results in greater sampling requirements (Section B-3d(2))  D. Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d)	N/A	N/A	N/A	N/A	SRS is not characterizing repackaged waste at this time.
DATA GENERATION, VERIFICATION, VALIDATION, DOCUMENTATION, AND QUALITY ASSURANCE						

	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
11	Are procedures in place to ensure that the following data quality objectives are met:  A. Use radiography or visual examination to verify physical waste form, identify prohibited items, verify determination of sampling and analytical requirements, and to confirm waste stream delineation by acceptable knowledge  B. Use visual examination as a process check of radiography (Section B-4a(1))	SW15.7-SOP-TVEF-01, R3, Par 1.1; SW18-WP-AP-0009, R1, Par 4.3	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
12	Are procedures in place to ensure that the following quality assurance objectives are adequately defined and assessed for each characterization method:  A. Precision as a measure of the mutual agreement among multiple measurements  B. Accuracy as the degree of agreement between a measurement result and a true or known value  C. Completeness as a measure of the amount of valid data obtained from a method compared to the total amount of data obtained that is expressed as a percentage  D. Comparability as the degree to which one data set can be compared to another data set (Section B-4a(2))	SW18-WP-AP-0016, R0	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	N/A	N/A
13	With respect to data generation, are procedures in place to ensure that the generator/storage site's waste characterization program meets the following general requirements:  A. Batch Data Reports must be reported accurately in a pre-approved format, must be maintained in permanent files, and must be traceable (Section B-4a(4), B-4a(7), B3-10a)  B. All data must receive a technical review by another qualified analyst (Section B3-10a(1))  C. All raw data must be reviewed and have the release signatures	A. SW18-WP-AP-0007, R3; SW18-WP-AP-0016, R0  B.-C. SW18-WP-AP-0016, R0	A. Y  B.-C. Y	A. - C. Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	A.-C. Y	A. Formats are in accordance with CBFO-approved procedures.

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	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	of a technical supervisor and a QA officer before release (Section B3-10a(2), B3-10a(3))					
14	Are procedures in place to ensure that the generator/storage site performs data validation and verification of waste characterization data for each waste container? (Section B-4, B3-10)	SW18-WP-AP-0003, R1, Par 1.2	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
15	Are procedures in place to ensure that the generator/storage site prepares analytical, testing, and sampling Batch Data Reports to meet the requirements of their own site-specific QAPjP and/or SOPs? (Section B-4a(4))	SW18-WP-AP-0016, R0	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
16	Are procedures in place to ensure that all raw data are collected and managed at the data generation level in accordance with the following criteria:  A. All raw data shall be signed and dated in reproducible ink by the individual collecting the data, or signed and dated using electronic signatures  B. All data shall be recorded clearly, legibly, and accurately in field and laboratory records and include all applicable sample identification numbers (for sampling and analytical labs)  C. All changes to original data shall be lined out, initialed, and dated by the individual making the change. Original data may not be obliterated or otherwise be made unreadable. Data changes shall only be made by the individual who originally collected the data or an individual authorized to change the data  D. All data shall be transferred and reduced from field and laboratory records completely and accurately  E. All field and laboratory records shall be maintained as specified in Table B-7 of Attachment B	A.-D. SW18-WP-AP-0016, R0          E. SW18-WP-AP-0007, R3, Appx 1	A.-D. Y          E. Y	A.-G. Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	A.-G. Y	



	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	F. Data shall be organized into standard reporting formats for each method of analysis	F. SW18-WP-AP-0016, R0	F. Y			
	G. All electronic and video data are stored to ensure that waste container, sample, and QC data are readily retrievable (Section B3-10a)	G. SW18-WP-AP-0007, R3, Appx 1	G. Y			
17	<p>Are procedures in place to ensure that 100 percent of Batch Data Reports are subject to independent technical review by an individual qualified to review the data? The reviewer shall release the data through signature with an associated review checklist prior to characterization of the associated waste and shipment to the WIPP. The review shall ensure the following, as applicable:</p> <p>A. Data were generated according to the methods used (procedure and revision) and reported in the proper units</p> <p>B. Calculations have been verified by a valid calculation program, a spot check of verified calculation programs, and/or a 100 percent check of all hand calculations</p> <p>C. The data have been reviewed for transcription errors</p> <p>D. The testing, sampling, and analytical QA documentation for Batch Data Reports is complete and includes (as applicable) raw data, calculation records, chain-of-custody forms, calibration records, QC sample results, and originals or copies of gas sample canister tags</p> <p>E. All QC sample results are within established control limits and, if not, the data have been appropriately qualified</p> <p>F. Reporting flags were assigned correctly (Table B3-14)</p> <p>G. Sample holding times and preservation requirements were met or exceptions documented</p> <p>H. Radiography tapes are reviewed (independent observation) on a waste container basis at a minimum of once per testing batch or once per day of operation, whichever is less frequent. The radiography tape will be reviewed against the data on the radiography form to ensure that data are complete and correct</p>	SW18-WP-AP-0016, R0; SW18-WP-AP-0017, R0; SW18-WP-AP-0003, R1, Att 2	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	

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	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate ? Y/N	
	I. Field sampling records are complete (B3-10a(1))					
18	Are procedures in place to ensure that 100 percent of all Batch Data Reports receive a technical supervisory signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following (as applicable):  A. The data are technically reasonable based on the technique used  B. All data have received independent technical review  C. The testing, sampling, and analytical QA documentation for Batch Data Reports is complete and includes (as applicable) raw data, calculation record, chain-of-custody forms, calibration records, QC sample results, and originals or copies of gas sample canister tags  D. Sample holding time requirements were met or exceptions documented  E. Field Sampling records are complete (Section B3-10a(2))	SW18-WP-AP-0016, R0: SW18-WP-AP-0003, R1, Att 2	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
19	Are procedures in place to ensure that 100 percent of all Batch Data Reports receive a QA Officer signature release with an associated review checklist before the associated waste is managed, stored, or disposed of at the WIPP? This release shall ensure the following (as applicable): A. Independent technical and technical supervisory review have been performed and documented through signature  B. The QA documentation for Batch Data Reports is complete  C. Sampling and QC checks have been properly performed and all QC criteria that have not been met have been documented  D. QAOs have been met (Section B3-10a(3))	SW18-WP-AP-0016, R0: SW18-WP-AP-0003, R1, Att 2	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	

DATA TRANSMITTAL

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	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
20	Are procedures in place to ensure that the generator/storage site transmits Batch Data Reports by hard copy or electronic copy from the data generation level to the site project level after all data generation level validations are complete? If electronic, does the generator/storage site have a hard copy available on demand? (Section B-4a(6), B3-10a)	SW18-WP-AP-0016, R0	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
RECORDS AND RECORD MANAGEMENT						
21	Are procedures in place to ensure that the generator/storage site's Batch Data Reports contain copies of non-conformance reports? (Tables B3-11 through B3-13)	SW18-WP-AP-0016, R0	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
22	Are procedures in place to ensure that the generator/storage site uses approved formats for Batch Data Reports as provided in site-specific documentation? (Section B3-12a)	SW18-WP-AP-0016, R0	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	Formats are in accordance with CAO-approved procedures.
23	Are procedures in place to ensure that the generator/storage site maintains records related to waste characterization sampling and analysis activities in the testing, sampling, or analytical facilities files or site project files? (Section B-4a(7))	SW18-WP-AP-0007, R3, Appx 1	Y	Observed during Audit A-01-01	Y	
24	Are procedures in place to ensure that the contract laboratories forward testing, sampling, and analytical records along with Batch Data Reports to the site project office for inclusion in the site project files? (Section B-4a(7))	N/A	N/A	N/A	N/A	External laboratories are not used by the SRS.
25	Are procedures in place to ensure that the generator/storage site has raw data that are identifiable, legible, and provide documentary evidence of quality? (Section B-4a(7))	SW18-WP-AP-0007, R3; SW18-WP-AP-0016, R0	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
REQUIRED AND SUPPLEMENTAL INFORMATION						

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	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
26	Have the following procedures been prepared:  A. Procedures for confirming acceptable knowledge information through headspace gas sampling and analysis, visual examination and/or radiography, and homogeneous waste sampling and analysis  B. Procedures describing management controls used to ensure prohibited items (specified in the WAP, Permit Attachment B) are documented and managed  C. Procedures to ensure radiography and visual examination include a list of prohibited items that the operator shall verify are not present in each container of waste (liquids exceeding TSDF-WAC limits, corrosives, ignitables, reactives, and incompatible wastes)  D. Procedures for newly generated waste shall describe how acceptable knowledge is confirmed using visual examination (Section B4-2b)	A. SW15.7-SOP-TVEF-01, R3  B. SW15.7-SOP-CONT-01, R8  C. SW15.7-SOP-TVEF-01, R2, Att 4  D. N/A	A. Y  B. Y  C. Y  D. N/A	A. - C. Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)   D. N/A	A.-C. Y      D. N/A	D. Newly generated wastes are not within the scope of the SRS program.
27	Has the generator site developed the following procedures, and are these procedures technically sufficient:  A. Sites must develop and implement a written procedure that ensures unacceptable wastes (e.g., reactive, ignitable, corrosive) are identified and segregated from TRU mixed waste populations sent to WIPP  B. Sites must prepare and implement a written procedure in compliance with Section B4-3(d) to identify hazardous wastes and assign the appropriate hazardous waste codes to each waste stream. The following are minimum baseline requirements/standards that site-specific procedures must include to ensure comparable and consistent characterization of hazardous waste:  1. Compile all of the required information in an auditable record  2. Review the required information to determine if the waste is listed under 40 CFR Part 261, Subpart D. Assign all listed hazardous waste codes, unless the site chooses to justify an alternative assignment and document the	A. SW15.7-SOP-TVEF-01, R2, Att 4  B. SW18-WP-AP-0002, R4	A. Y  B. Y	A.-B. Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	A.-B. Y	

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TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>		Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
justification in the auditable record						
3. Review the required information to determine if the waste may contain hazardous constituents included in the toxicity characteristics specified in 40 CFR Part 261, Subpart C. If a toxicity characteristic contaminant is identified and is not included as a listed waste, assign the toxicity characteristic code, unless data are available which demonstrate that the concentration of the constituent in the waste is less than the toxicity characteristic regulatory level. When data are not available, the toxicity characteristic hazardous waste code for the identified hazardous constituent must be applied to the mixed waste stream		B.3 SW18-WP-AP-0002, R4, Par 4.4.1	B.3 Y			
C. For newly generated waste, procedures shall be developed and implemented to characterize hazardous waste using acceptable knowledge prior to packaging (Section B4-3b)		C. N/A	C. N/A	C. N/A	C. N/A	C. Newly generated wastes are not within the scope of the SRS program.
CONFIRMATION OF ACCEPTABLE KNOWLEDGE						
28	Does the generator site have written procedures for the confirmation of all acceptable knowledge information using headspace gas sampling and analysis, homogeneous waste sampling and analysis, radiography, and/or visual examination? Are these procedures developed for both retrievably stored and newly generated waste? (Section B4-3d)	SW15.7-SOP-TVEF-01, R3	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	See CAR 01-003 (TAB-CAR1)  Newly generated wastes are not within the scope of the SRS program.
29	Does the generator site have written procedures for newly generated waste to document the confirmation of acceptable knowledge information with visual examination prior to or during waste packaging? Do these procedures address the required elements in Section B4-3d? (Section B4-3d)	N/A	N/A	N/A	N/A	Newly generated wastes are not within the scope of the SRS program.
30	Do the site's documents ensure that acceptable knowledge is confirmed using the visual examination technique or VE in lieu of radiography when retrievably stored waste is repackaged? (Section B4-3d)	N/A	N/A	N/A	N/A	SRS is not characterizing repackaged waste at this time.
31	Do site procedures indicate that debris wastes are assigned toxicity characteristic EPA numbers based on AK? (Section B4-3d)	SW18-WP-AP-0002, R4, Par 4.4.1	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 (TAB-VE1)	Y	

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	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
				00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)		
32	Do site documents state that radiography (or VE, if waste is newly generated) is used to confirm Waste Matrix Code and waste streams assigned to retrievably stored waste via AK? (Section B4-3d)	SW15.7-SOP-RTR-01, R8, Par 1.1	Y	Review of Batch Data Reports: RTR: 00-RTR-001 (TAB-VE4) 00-RTR-002 (TAB-VE5) 00-RTR-003 (TAB-VE6)	Y	See CAR 01-003 (TAB-CAR1)
CHARACTERIZATION AND SYSTEM REQUIREMENTS						
33	Does the site have procedures to ensure that radiography is used to verify the Waste Matrix Code (physical form), estimate waste material parameter weights, and identify prohibited items for each waste container of retrievably stored waste? (Section B-3c, B3-4)	SW15.7-SOP-RTR-01, R8, Par 1.1	Y	Review of Batch Data Reports: RTR: 00-RTR-001 (TAB-VE4) 00-RTR-002 (TAB-VE5) 00-RTR-003 (TAB-VE6)	Y	
34	Do procedures or other supporting documentation ensure that <u>every</u> waste container will undergo radiography and/or VE? (Section B-3c)	SW15.7-SOP-RTR-01, R8, Par 1.1; SW18-WP-AP-0003, R1	Y	Review of Batch Data Reports: RTR: 00-RTR-001 (TAB-VE4) 00-RTR-002 (TAB-VE5) 00-RTR-003 (TAB-VE6)	Y	
35	Do procedures ensure that containers with lead liners are examined by visual examination rather than by radiography? (Section B1-3a)	SW15.7-SOP-RTR-01, R8, Par 2.0.6	Y	Review of Batch Data Reports: RTR: 00-RTR-001 (TAB-VE4) 00-RTR-002 (TAB-VE5) 00-RTR-003 (TAB-VE6)	Y	No lead-lined containers have been encountered at SRS to date.
36	Do procedures or other supporting documentation ensure that radiography and/or VE results are compared with waste stream descriptions as per Section B-3c?	SW15.7-SOP-RTR-01, R8, Att 3, & Par 4.2.1.36	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
	If discrepancies are noted, will a new waste stream be identified? (Section B-3c)	SW15.7-SOP-RTR-01, R8, Par 4.2.1.m.4; SW15.7-SOP-TVEF-01, R3	Y		Y	
37	Do procedures/processes ensure that the estimated WMP weights are determined by compiling an inventory of waste items, residual materials, and packaging materials? Were the items on the inventory sorted by WMP	SW15.7-SOP-TVEF-01, R3	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2)	Y	

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	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate ? Y/N	
	and combined with a standard weight look-up table to provide an estimate of WMP weights? (Section B1-3a)			00-VE-012 (TAB-VE3)		
38	If radiography and/or VE indicates that the waste does not match the waste stream description, do procedures ensure that the appropriate corrective action was taken? (Section B-3c)	SW15.7-SOP-TVEF-01, R3; SW15.7-SOP-CONT-01, R8	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	This situation has not occurred at SRS to date. Interviews with operators indicate the requirement was understood.
39	For waste containers undergoing visual examination, does the visual examination data form for each waste container also identify the matrix parameter category and waste material parameter weights as determined by visual examination and prohibited materials? (Section B-3d, B1-3b(3))	SW15.7-SOP-TVEF-01, R3, Att 4	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
CONFIRMATION OF RADIOGRAPHIC RESULTS						
40	As a QC check on radiography, do procedures or other documentation require that the site open and visually examine a statistical portion of the certified waste containers? (Section B-3c, B1-3b(3), B2-1)	SW15.7-SOP-TVEF-01, R3; SW18-WP-AP-0009, R1, Par 4.3	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3) Misclassification rate memorandums (TAB-VE12)	Y	
41	Do site procedures ensure that the site use the data from visual examination to check the Waste Matrix Code, absence of prohibited items, and waste material parameter weight estimates, as determined by radiography? (Section B2-1)	SW15.7-SOP-TVEF-01, R3, Att 4 and 5	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)  Reviewed MEMO from M. Mason to WIPP Records containing waste material parameter weight comparisons (TAB-VE13)	Y	
TRAINING						

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	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate ? Y/N	
42	Is there documentation which shows that a standardized training program for visual examination personnel has been developed? Does it include both formal classroom and OJT? (Section B1-3b(3))	SW15.7-SOP-TVEF-01. R3, Par 2.0.9	Y	Examined VE Operator Qualification Cards and walk-through evaluation guides and Training Requirements, completion and Certifications for: J. Barlow (TAB-VE7) J. Mobley (TAB-VE8) G.F. Fussel (TAB-VE9) S. Hawkins (TAB-VE10) C.M. Hensley (TAB-VE11)	Y	
43	Is there documentation which shows that the visual inspectors receive training on the specific waste generating processes, typical packaging configurations, and waste material parameters expected to be found in each Waste Matrix Code at the site? (Section B1-3b(3))	SW15.7-SOP-TVEF-01. R3, Par 2.0.9	Y	Examined VE Operator Qualification Cards and walk-through evaluation guides and Training Requirements, completion and Certifications for: J. Barlow (TAB-VE7) J. Mobley (TAB-VE8) G.F. Fussel (TAB-VE9) S. Hawkins (TAB-VE10) C.M. Hensley (TAB-VE11)	Y	
44	Is there documentation which shows that the OJT and apprenticeship are conducted by a qualified, experienced operator? Are the visual examination personnel requalified once every two years? (Section B1-3b(3))	SW15.7-SOP-TVEF-01. R3, Par 2.0.9	Y	Examined VE Operator Qualification Cards and walk-through evaluation guides and Training Requirements, completion and Certifications for: J. Barlow (TAB-VE7) J. Mobley (TAB-VE8) G.F. Fussel (TAB-VE9) S. Hawkins (TAB-VE10) C.M. Hensley (TAB-VE11)	Y	
45	Is the site-specific training program based on the following elements:  A. <u>Formal Training</u> 1. Project Requirements 2. State and Federal Regulations 3. Application Techniques 4. Site-Specific Instruction (Section B1-3b(4))	SW15.7-SOP-TVEF-01. R3, Par 2.0.9	Y	Examined VE Operator Qualification Cards and walk-through evaluation guides and Training Requirements, completion and Certifications for: J. Barlow (TAB-VE7) J. Mobley (TAB-VE8) G.F. Fussel (TAB-VE9) S. Hawkins (TAB-VE10)	Y	



	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
	B. <u>On-the-Job Training</u> 1. Identification of Packaging Configurations 2. Identification of Waste Material Parameters 3. Weight-and-Volume Estimation 4. Identification-of-Prohibited-Items (Section B1-3b(5))			C.M. Hensley (TAB-VE11)		
<b>VISUAL EXAMINATION EXPERT REQUIREMENTS</b>						
46	Does documentation ensure that the site has designated a visual examination expert? Has the visual examination expert completed all of the required training? Is the visual examination expert familiar with the waste generating processes that have taken place at the site? Is the visual examination expert familiar with all of the types of waste being characterized at that site? (Section B1-3b(5))	ZET10012.Q0101, Qual. Std.	Y	Operator training records, VEE: Fussell (TAB-VE9) Peek  Reviewed MEMO SWE-TSD-2000-0029 which designated the VEE.	Y	
47	Does documentation ensure that the visual examination expert is responsible for the overall direction and implementation of the visual examination at that facility?  Does the site's QAPjP specify the selection, qualification, and training requirements of the visual examination expert? (Section B1-3b(5))	SW15.7-SOP-TVEF-01, R3, Par 2.0.10; QAPjP, Par B1-3b(5)	Y	Observed during Audit A-01-01.	Y	
48	Does the site's QAPjP specify decision-making criteria for the visual examination expert to follow when determining the appropriate degrees of segregation? (Section B1-3b(5))	QAPjP, Par B1-3b(3)	Y	Specified in QAPjP. Observation of VE during audit verified the VEE was using those criteria.	Y	
<b>VISUAL EXAMINATION PROCEDURES</b>						
49	Does site documentation indicate that visual examination is based on a semi-quantitative and/or qualitative evaluation of the waste container contents and that the examination is recorded on audio/videotape or equivalent? (Section B1-3b(3))	SW15.7-SOP-TVEF-01, R3, Par 1.1 and 1.2	Y	Review of Batch Data Reports: <u>VE</u> : 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	See CDA #1 (TAB-CDA1)
50	Do site procedures ensure that the visual inspector records the description of the waste container contents on a data form? Does the description clearly identify all discernible waste items, residual materials, packaging	SW15.7-SOP-TVEF-01, R3, Att 4	Y	Review of Batch Data Reports: <u>VE</u> :	Y	

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	TABLE B6-8 VE (QC Check on RTR) and Data Generation Level Review WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	materials, or waste material parameters? (Section B1-3b(3))			00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)		
51	Do site procedures ensure that when the bags are not opened, a brief written description of the contents of the bags is prepared to document the estimated amounts of each waste type in the bags, based upon the use of historically derived waste weight tables and an estimation of the waste volumes? (Section B1-3b(3), B1-3b(5))	SW15.7-SOP-TVEF-01, R3, Par 4.3.2.8 (all)	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
52	Do site procedures ensure that the written records of visual examination are supplemented with the audio/video recording or equivalent? (Section B1-3b(5))	SW15.7-SOP-TVEF-01, R3, Par 1.2 and 4.3.2	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
53	Does the site have a site-specific SOP for conducting visual examinations? (Section B1-3b(5))	SW15.7-SOP-TVEF-01, R3	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
54	Do site documents include decision-making criteria for the visual examination expert to use in assessing the need to open the bags/packages in order to identify all of their contents? (Section B1-3b(5))	SW15.7-SOP-TVEF-01, R3, Par 4.3.2.8 Note & 4.3.2.8.e	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
55	In cases when visual examination is done as a QC check to the radiography results, are precautions taken to ensure that the visual examination team does not review the radiography results prior to the visual examination, with the exception of items or conditions that could pose a hazard to visual examination personnel? (Section B1-3b(3))	SW15.7-SOP-TVEF-01, R3, Par 2.0.8	Y	Review of Batch Data Reports: VE: 00-VE-002 (TAB-VE1) 00-VE-009 (TAB-VE2) 00-VE-012 (TAB-VE3)	Y	
56	Do site procedures ensure that when liquids are found in non-transparent inner containers, they will be handled by assuming that the container is filled with liquid and the volume is added to the total for the payload	N/A	N/A	N/A	N/A	All containers are radiographed and volume is calculated based on the actual volume.

	<b>TABLE B6-8</b> <b>VE (QC Check on RTR) and Data Generation Level Review</b> <b>WAP Requirement<sup>1</sup></b>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate ? Y/N	
	container? (Section B-3c)  Are procedures in place to identify and segregate other prohibited items? (Section B-3c)	SW15.7-SOP-TVEF-01, R3, Par 4.3.4.1, SW15.7-SOP-CONT-01, R8	Y	Review of Batch Data Reports: <u>VE:</u> 00-VE-002 ( <b>TAB-VE1</b> ) 00-VE-009 ( <b>TAB-VE2</b> ) 00-VE-012 ( <b>TAB-VE3</b> )	Y	

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to determine whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

**Table B6-9**  
**Visual Examination Technique and Data Generation Level Review Checklist**

The Visual Examination Technique is not being used at SRS and is not applicable to Audit A-01-01

**SRS (A-01-01)**  
**Table B6-10**  
**Quality Assurance Areas Checklist**

	TABLE B6-10 Quality Assurance Areas WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Ade quate? Y/N (Why?)	Item Reviewed	Ade quate? Y/N	
NONCONFORMANCES						
1	Are procedures in place to ensure that non-administrative, WAP-related nonconformances first identified at the Site Project Manager level are reported to the Permittees within five (5) calendar days of identification, that nonconformance reports are received by the Permittees within thirty (30) calendar days of the incident, and that corrective action is implemented prior to waste shipment? (Section B3-1, B3-13)	WSRC-RP-99-01119, Par. 1.5	Y	N/A		No NCRs have been written that meet these criteria.
2	Are procedures in place to ensure that nonconformances are appropriately identified, reconciled, corrected, and documented? Are nonconformance reports prepared for each identified nonconformance? Are nonconformances identified and tracked, and does the Site Project QA Officer oversee the nonconformance report process? (Section B3-13)	1Q QAP 15-1, R9	Y	2000-NCR-26-0034, <b>TAB-QA1</b> 2000-PDR-26-0015, <b>TAB-QA2</b> 2000-PDR-26-0019, <b>TAB-QA3</b>  CDR's for Containers: SR235195, <b>TAB-QA5</b> SR235187, <b>TAB-QA6</b> SR328901, <b>TAB-QA4</b>		These items were selected for review from the NCR Tracking log.
3	Has the generator site implemented administrative controls to ensure that prohibited items are documented and managed in accordance with site-specific certification plans and that the following minimum elements are addressed in site-specific documentation associated with administrative controls:  A. Identify the organization(s) responsible for compliance with administrative controls  B. Identify the oversight procedures and frequency of actions to verify compliance with administrative controls  C. Develop on-the-job training specific to administrative control procedures	A. WSRC-RP-99-01097  B.-C. 1Q QAP 1-2 R3	A. Y  B.-C. Y	A. WSRC-RP-99-01097  B. 1Q QAP1-2, R3  C. Indoctrination and Qualification Documentation of the following: John Kelly, <b>TAB-QA7</b> William Leschak, <b>TAB-QA8</b> Leah Wilson, <b>TAB-QA9</b> Janice Shipes, <b>TAB-QA10</b> Ronald Ergle, <b>TAB-QA11</b> Brian Culligan, <b>TAB-QA12</b> Glen Jackson, <b>TAB-QA13</b> Gilmore Lunsford, <b>TAB-QA14</b>	N/A  Y  Y	A. These items are identified in the QAPjP.  B. These are identified in the procedure.

	TABLE B6-10 Quality Assurance Areas WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
	<p>D. Ensure that personnel may stop work if noncompliance with administrative controls is identified</p> <p>E. Develop a nonconformance process that complies with the requirements in Section B3-13 of the WAP to document and establish corrective actions</p> <p>F. As part of the corrective action process, assess the potential time frame of the noncompliance, the potentially affected waste population(s), and the reassessment and recertification of those wastes (Section B4-3b, )</p>	D-F. 1Q. QAP 15-1, R9	D.-F. Y	<p>D.-F. 2000-NCR-26-0034, <b>TAB-QA1</b> 2000-PDR-26-0015, <b>TAB-QA2</b> 2000-PDR-26-0019, <b>TAB-QA3</b></p> <p>CDR's for Containers: SR235195, <b>TAB-QA5</b> SR235187, <b>TAB-QA6</b> SR328901, <b>TAB-QA4</b></p>	D.-F. Y	
4	Are procedures in place to ensure that the appropriate documented training and indoctrination is performed for all personnel involved in WAP activities and that procedures are documented in site-specific QAP/Js and procedures? (Section B3-14)	4B. Procedure 4.0; 1Q QAP 2-2, R2; SWD-SWT-98-0058, R4; SWD-SWT-98-0056, R3; ZETI0021.Q0104, R4; ZEOI0000.Q0103, R3;	Y	<p>Indoctrination and Qualification Documentation of the following: John Kelly, <b>TAB-QA7</b> William Leschak, <b>TAB-QA8</b> Leah Wilson, <b>TAB-QA9</b> Janice Shipes, <b>TAB-QA10</b> Ronald Ergle, <b>TAB-QA11</b> Brian Culligan, <b>TAB-QA12</b> Glen Jackson, <b>TAB-QA13</b> Gilmore Lunsford, <b>TAB-QA14</b></p>	Y	Training records were randomly selected and reviewed for the individual's shown.
TRAINING						
5	<p>Does the generator site have procedures to ensure that all personnel involved with acceptable knowledge waste characterization have the following training, and is this training documented?</p> <p>A. WIPP WAP and TSDF Waste Acceptance Criteria requirements</p> <p>B. State and Federal RCRA regulations associated with solid and hazardous waste characterization</p> <p>C. Discrepancy resolution and reporting processes</p> <p>D. Site-specific procedures associated with waste characterization using acceptable knowledge (Section B4-3a)</p>	4B. Procedure 4.0; 1Q QAP 2-2, R2 SWD-SWT-98-0058, R4; SWD-SWT-98-0056, R3; ZETI0021.Q0104, R4; ZEOI0000.Q0103, R3	Y	Supporting Documentation for Qualification Card of Gilmore F. Lunsford, Acceptable Knowledge Cognizant Technical Function <b>TAB-QA14</b>	Y	See CDA # 7 ( <b>TAB-CDA7</b> )
RECORDS						

	TABLE B6-10 Quality Assurance Areas WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
6	Are procedures in place to ensure that the generator/storage site has an appropriate records inventory and disposition schedule (RIDS) or equivalent that was prepared and approved by appropriate site personnel? (Section B-4a(7))	SW18-WP-AP-0007, R3, Par 3.0	Y	Retention Schedule Matrix	Y	Records retention is logged on the matrix.  See CDA # 8 (TAB-CDA8)
7	Are procedures in place to ensure that the generator/storage site maintains all records relevant to an enforcement action, regardless of disposition, until NMED determines they are no longer needed for enforcement action, and then dispositions them per the approved RIDS? (Section B-4a(7))	WSRC-RP-99-01097, §B-4a(7) SW18-WP-AP-0007	Y	Retention Schedule Matrix	Y	Currently there are no "frozen" records.
8	Are procedures in place to ensure that the generator/storage site maintains records that are designated as Lifetime Records for the life of the waste characterization program plus six years, and then offers those records to the Permittees or transfers them to the appropriate Federal Records Center (FRC)? Lifetime Records include: A. Field sampling data forms B. Field and laboratory COC forms C. Test facility and laboratory Batch Data Reports D. Waste Stream Characterization Packages E. Sampling plans F. Data reduction, validation, and reporting documentation G. Acceptable knowledge documentation H. Data reconciliation report I. WSPF and Characterization Information Summary (Section Table B-7, B-4a(7))	SW18-WP-AP-0007, R3	Y	Retention Schedule Matrix	Y	Records were randomly selected to verify retention.



	TABLE B6-10 Quality Assurance Areas WAP Requirement <sup>1</sup>	Procedure Documented		Objective Evidence, as applicable		Comment (e.g., any change in procedure since last audit, etc.)
		Location	Adequate? Y/N (Why?)	Item Reviewed	Adequate? Y/N	
9	<p>Are procedures in place to ensure that the generator/storage site maintains records that are designated as Non-Permanent Records for ten years from the date of record generation, and then dispositions them per the approved RIDs?</p> <p>Non-Permanent Records include:</p> <ul style="list-style-type: none"> <li>A. Nonconformance documentation</li> <li>B. Variance documentation</li> <li>C. Assessment documentation</li> <li>D. Gas canister tags</li> <li>E. Methods performance documentation</li> <li>F. PDP documentation</li> <li>G. Sampling equipment certifications</li> <li>H. Calculations and related software documentation</li> <li>I. Training/qualification documentation</li> <li>J. QAPJP documentation (all revisions)</li> <li>K. Calibration documentation</li> <li>L. Analytical raw data</li> <li>M. Procurement documentation</li> <li>N. QA procedures (all revisions)</li> <li>O. Technical implementing procedures (all revisions)</li> <li>P. Audio/video recording (radiography, visual, etc.)</li> </ul> <p>(Section Table B-7, B-4a(7))</p>	SW18-WP-AP-0007, R3	Y	Retention Schedule Matrix	Y	Records were randomly selected to verify retention.
10	<p>Are procedures in place to ensure that if the generator/storage site ceases to operate, all records are to be transferred before closeout? (Section B-4a(7))</p>	SW18-WP-AP-0007, R3	Y	Retention Schedule Matrix	Y	Matrix identifies transfer requirements.
11	<p>Has the generator site developed the following procedures, and are these procedures technically sufficient: Sites must prepare and implement a written procedure that provides a cross-reference to the applicable waste Summary Category Group (i.e., S3000, S4000, and S5000) to verify all of the required confirmation data have been evaluated and the proper hazardous waste codes have been assigned (Section B4-3b)</p>	WP-AP-0002 R4, PAR 3(2.3), 4.5 & Appendix 4	Y	Review of AK Summary Report for SR-T001-221F-HET, S22.0 & S5.5.1 (TAB-QA15)	Y	

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements is meant to determine whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.