



Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
January 8, 2004

ENTERED



Mr. Steve Zappe, Project Leader
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, New Mexico 87505-6303

RE: Transmittal of the Final Audit Report for the Hanford Site (A-04-06)

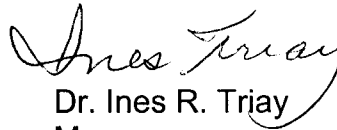
Dear Mr. Zappe:

This letter transmits the Hanford Site Audit Report for the processes performed to characterize and certify waste as required by Section II.C.2c of the WIPP Hazardous Waste Facility Permit. The report contains the results of the audit performed. The audit was conducted November 4-5, 2003.

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

Please contact the CBFO Quality Assurance Manager, Ava L. Holland, at (505) 234-7423 should you have any questions concerning this audit report.

Sincerely,


Dr. Ines R. Triay
Manager

Enclosure



Mr. Steve Zappe

-2-

January 8, 2004

cc: w/o enclosure

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K. Dunbar, WRES	
CBFO QA File	
CBFO M&RC	

U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

FINAL AUDIT REPORT

OF THE

HANFORD SITE

RICHLAND, WASHINGTON

AUDIT NUMBER A-04-06

November 4 – 5, 2003

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



Prepared by: Pete V. Rodriguez
Pete V. Rodriguez, CTAG
Audit Team Leader

Date: 1/8/04

Approved by: Ava L. Holland
Ava L. Holland, CBFO
Quality Assurance Manager

Date: 1/8/04

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1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-04-06 was conducted at the CBFO offices in Carlsbad, New Mexico, November 4 – 5, 2003, to finalize the evaluation of the Hanford transuranic (TRU) waste characterization and certification activities related to the solids sampling and analysis program. This audit was a follow-up to the previous recertification Audit A-03-14, performed June 16 – 20, 2003, wherein it was stated, in part, that the analysis by the Idaho National Engineering and Environmental Laboratory (INEEL) and project-level validation and verification (V&V) of Summary Category Group S3000 solids was pending. Audit A-03-14 also verified that the already certified program and equipment were adequate for the physical characterization of homogeneous solids and debris wastes, including the visual examination (VE), real-time radiography (RTR), and headspace gas (HSG) sampling and analysis processes. Again, Audit A-03-14 was conducted with the caveat that this follow-up audit/assessment would be required to verify the analysis by the INEEL and project-level V&V, to ensure complete characterization of Summary Category Group S3000.

Audit A-04-06 evaluated the adequacy, implementation, and effectiveness of the Hanford processes for sample design, reconciliation of data quality objectives (DQOs) and the administrative processes ensuring project-level V&V, and the subsequent confirmation of acceptable knowledge (AK). The audit team assessed the adequacy, implementation, and effectiveness of the technical and selected quality assurance (QA) activities. The QA program activities not evaluated as part of this audit were evaluated in the previous CBFO audit (A-03-14) of the Hanford TRU waste characterization program.

The audit scope included verification of traceability of solid waste containers throughout the characterization process. Drums were tracked through the physical characterization processes conducted at the Hanford site, with the solids sampling procedure and process at the Plutonium Finishing Plant (PFP) being demonstrated and evaluated during Audit A-03-14, June 16-20, 2003. The solids analysis conducted at the INEEL and the project-level V&V and subsequent confirmation of AK conducted by the Hanford facility were evaluated and verified at the CBFO offices during Audit A-04-06.

The audit team concluded that the technical and QA procedures were adequate relative to the flow-down of requirements from the CBFO Quality Assurance Program Document (QAPD), the Waste Analysis Plan (WAP) of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), and the WIPP Waste Acceptance Criteria (WAC). The audit team also concluded that the assessed activities relative to Summary Category Group S3000 solids were satisfactorily implemented in accordance with the Hanford Quality Assurance Project Plan (QAPjP), the implementing procedures, and established program interface documents. The established technical processes and the QA program were also determined to be effective.

During the audit, the audit team did not identify any conditions adverse to quality (CAQ) that required the issuance of a CBFO corrective action report (CAR). No isolated deficiencies requiring remedial corrective action were identified or corrected during the audit (CDA). No Observations resulted from the audit. One Recommendation, described in Section 7.2, was identified and is offered for management consideration.

2.0 SCOPE AND PURPOSE

CBFO Audit A-04-06 was conducted as a follow-up certification audit of the Hanford site and supplements previous Audit A-03-14, performed June 16 – 20, 2003. This audit completes the evaluation of the adequacy, implementation, and effectiveness of the applicable technical and QA activities related to the Hanford TRU waste characterization and certification programs for S3000 homogeneous solids (i.e., solid sample analysis, project level V&V, confirmatory activities and requisite waste stream profile forms). The audit team evaluated those processes used to assure adequate sample design, reconciliation of DQOs, and the project-level V&V activities needed to complete the AK confirmation process for S3000 waste in accordance with the Hanford implementing documents. In addition, the audit team evaluated the interface responsibilities and contractual requirements that the Hanford/CBFO programs have implemented for use by the INEEL analytical laboratories for providing solids analysis services. (Note: Previous characterization activities of S3000 solids have included HSG sampling and analysis, solids sampling activities, nondestructive examination (NDE), VE and VE Technique (VET) at the PFP, Waste Receiving and Processing (WRAP) facility, and T-Plant, as applicable.) The audit team also evaluated the processes for developing and confirming AK documentation.

The following QA elements related to the characterization of solid waste were evaluated in accordance with the CBFO QAPD:

- QA Program Interfaces
- Procurement of Services
- Sample Control

The following CBFO technical characterization elements were evaluated in accordance with the WAP and the WAC:

- Project-level Data V&V
- Sample Design/Reconciliation of DQOs
- AK Confirmation
- Waste Stream Profile Forms
- WAP Section B6

Evaluation of Hanford TRU waste characterization and certification activities and documents was based on current revisions of the following documents:

- *Quality Assurance Program Document (QAPD)*, DOE-CBFO-94-1012
- *Hazardous Waste Facility Permit Waste Isolation Pilot Plant EPA No. NM4890139088-TSDF*, New Mexico Environment Department, dated October 27, 1999, including all applicable modifications
- *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*, DOE-IWIPP-02-3122

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

- *Hanford Site Quality Assurance Project Plan (QAPjP) for the Transuranic Waste Characterization Program*
- *Hanford Site Transuranic Waste Certification Plan*
- Related Hanford technical and QA implementing procedures

3.0 AUDIT TEAM, INSPECTORS, AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Pete Rodriguez	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Earl Bradford	Auditor, CTAC
Steven Calvert	Auditor, CTAC
Dave Price	Auditor, CTAC
Dick Blauvelt	Technical Specialist, CTAC
BJ Verret	Technical Specialist, CTAC

OBSERVERS

Ben Walker	Environmental Evaluation Group (EEG)
Steve Holmes	New Mexico Environment Department (NMED) Observer (via phone-in)

4.0 AUDIT PARTICIPANTS

Hanford individuals involved in the audit process are identified in Attachment 1. A pre-audit conference was held at the Skeen-Whitlock Building on November 4, 2003. Daily management briefings were held with Hanford management to discuss the progress of the audit and potential deficiencies. The audit concluded with a post-audit briefing held in the Skeen-Whitlock Building on November 5, 2003.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy and Implementation

This audit was performed to assess Hanford's ability to characterize and certify waste from Summary Category Group S3000 homogeneous solid waste, to the requirements specified in the WIPP WAP.

The audit team concluded that the Hanford technical, QA, and administrative procedures evaluated adequately reflect the appropriate requirements from the CBFO QAPD, the WIPP HWFP, and the Contact-Handled (CH) Waste WAC. The audit team also concluded that the documented technical and QA programs, as related to S3000 solid wastes, are satisfactorily implemented and effective. Details of audit activities, including specific objective evidence reviewed, are described below and in the attached B6 checklist. The B6 checklist identifies the Hanford program documents and procedures in which the WAP requirements are met. Attachment 3 contains examples of the objective evidence reviewed during the audit.

5.2 Technical Activities

5.2.1 Table B6-1 WAP Checklist

The B6-1 WAP checklist addresses program requirements from an overall management perspective. It documents the verification that the waste characterization strategy, as defined in the WAP, is implemented by using controlled procedures. This audit was performed to assess Hanford's ability to complete the AK confirmation processes, including those processes used to assure adequate sample design, solid sample analysis, reconciliation of DQOs, and project level V&V for final characterization of the homogeneous solid waste (S3000). 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 evaluation and review of the documentation associated with gas sampling and analysis, solids sampling and analysis, VE, VET, and WIPP Waste Information System (WWIS) data entry. (Note: The attached B6-1 Checklist focuses on requirements directly associated with S3000 homogeneous solids. An asterisk (*) next to a checklist item denotes that the item is not applicable (N/A) as it has been previously assessed as adequate and the associated objective evidence provided via the final audit report and checklist of A-03-14.) Each characterization process involves:

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

The flow of data from the point of generation to inclusion in the WSPF was reviewed for each characterization technique to ensure that all applicable requirements were captured in the site operating procedures. Specific procedures audited and the objective evidence reviewed are described in more detail in the following sections.

Hanford demonstrated compliance with the characterization requirements of the WAP in documentation and in characterization activities performed. The following BDRs were reviewed as objective evidence for final characterization of the homogeneous solid waste (S3000), including the project-level V&V process. Copies of all the referenced batch data reports are included in Attachment 2.

- PFP-VE-2001-021 (VET) Hanford Ash
- PFP-VE-2002-002 (VET) Hanford Ash
- PFP-VE-2003-034 (VET) Hanford Ash
- PFP-VE-2001-003 (VET) RFETS Ash
- PFP-VE-2001-009 (VET) RFETS Ash
- ALD03019S (Solids Analysis) / Hanford Ash
- ALD03019V (Solids Analysis) / Hanford Ash
- ALD03022M (Solids Analysis) / Hanford Ash
- ALD03022N (Solids Analysis) / Hanford Ash
- ALD03023M (Solids Sampling and Analysis) / RFETS Ash
- ALD03023N (Solids Sampling and Analysis) / RFETS Ash
- ALD03020S (Solids Sampling and Analysis) / RFETS Ash
- ALD03020V (Solids Sampling and Analysis) / RFETS Ash
- PFP-SS-2003-01 (Solids Sampling) / RFETS Ash
- PFP-SS-2003-02 (Solids Sampling) / RFETS Ash

The AK and the auditable records were previously reviewed in detail (Audit A-03-14), for waste streams S5000 and S3000. The current AK record was reviewed to demonstrate that the required information was present and correctly interpreted. The BDRs cited above were used to demonstrate confirmation of AK, reconcile DQOs, prepare a WSPF, and transmit data to WIPP using the WWIS.

A draft WSPF (RLRFETS.001) and related summarized characterization information were reviewed to establish the objective evidence for reporting waste characterization information to WIPP. The form was completed using information from characterization processes. A WSPF will be submitted to CBFO prior to any shipments. This WSPF will be reviewed and approved by the CBFO when the waste stream (S3000) has been approved by the NMED for shipment to WIPP.

Demonstration of AK confirmation, DQO reconciliation, preparation of a WSPF, and the transmittal of data to WIPP were also satisfactorily verified during CBFO Audit A-03-14, June 16 – 20, 2003.

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

The audit team evaluated the solids sampling procedure and process at the PFP during a demonstration performed by Hanford personnel during the June 2003 recertification audit, CBFO Audit A-03-14. At that time, the audit team also examined the documentation generated during the solid sampling demonstration and no issues were identified for this process. Activities for sample handling and chain-of-custody were evaluated by observing the process steps and examining related documentation. The VET being used for characterizing waste at the PFP facility, as applied to homogeneous solids (S3000), was also evaluated through the review of data packages. The audit team concluded that the procedures for sample handling and chain-of-custody remained adequate and that the processes were satisfactorily implemented and effective.

For this audit, four analytical data packages of Rocky Flats ash (S3000) were examined. These data packages were produced from samples that Hanford had sent to the INEEL for analysis. The analytical data packages were ALD03023M (Metals Analysis), ALD03023N (Non-Halogenated Volatile Organics), ALD03020S (Semivolatile Organics) and ALD03020V (Volatile Organics). Additionally, sampling data packages of Hanford ash (PFP-SS-2003-01 and PFP-SS-2003-02) was audited. (Note: The attached B6-2 Checklist focuses on the requirements directly associated the S3000 homogeneous solids, as assessed for this audit. An asterisk (*) denotes that an item is N/A as it has been previously assessed as adequate and the associated objective evidence provided via the final audit report and checklist of Audit A-03-14. Items may also be annotated as N/A because they are associated with the actual analysis activities performed by the INEEL and are therefore previously assessed and approved via CBFO A-03-15).

Training of samplers was verified, NCR and CAR closure was examined, and sample chain-of-custody was verified. Data V&V at the project level of both sampling and analytical data packages were also examined during the audit.

The audit team concluded that procedures and processes for the Hanford program for solid sampling and analysis by the INEEL are adequate, satisfactorily implemented, and effective.

5.2.3 Table B6-3 Acceptable Knowledge Checklist

The AK process at the Hanford facility was previously evaluated during CBFO Audit A-03-14 in June 2003. At that time, the auditors reviewed updated versions of the AK summary reports from the PFP mixed and non-mixed debris streams. In addition, a new AK summary document for sand, slag, and crucibles (SS&C) debris waste was reviewed as well as an AK summary report for a solids waste stream (Rocky Flats ash) *Hanford Site TRU Waste Management Waste Specific AK Documentation for TRM Incinerator Ash from the Rocky Flats Environmental Technology Site, Waste Stream RFETS01 R.2*. The summary documents were generally complete and represented an

effective implementation of the AK procedure. Related AK source document summaries were collected, reviewed, and compiled as objective evidence. However, the confirmatory testing portion of the AK process had not been completed, particularly solids sampling and analysis of the ash inventory at Hanford, along with preparation of a WSPF and associated attachments. These data were subsequently made available for Audit A-04-06 and were the focus of attention for the auditors.

For this audit, the auditors and technical specialist reviewed data and documentation to support the certification of the Hanford site for shipment of Summary Category Group S3000 solids to WIPP for disposal. The S3000 ash waste is packaged in billet cans which are then placed in pipe overpacks (1 to 3 cans per overpack, depending on the assay). The auditors examined batch data reports for five billet cans with respect to solid sampling, and eight billet cans with respect to VE technique. They also reviewed batch data reports for two additional cans for VE technique, and HSG sampling, and determined that this stream is a candidate for reduced HSG sampling. The selection process was also examined. Other documents reviewed and collected as objective evidence include a draft WSPF, Characterization Information Summary (CIS), DQO checklist and HSG and Solids Summary Report, a draft AK Confirmation Checklist and a draft AK Performance (Accuracy) Report. The assessment of the AK process yielded no CARs, no CDAs and one Recommendation (Recommendation 1) for the improvement of AK reporting.

The AK checklist was completed, in part, by reviewing the documents cited above. Additional documentation supporting the AK summary documents and AK source document review summaries are contained in Attachment 2 to support the entries in Table B6-3. (Note: The attached B6-3 checklist focuses on the requirements directly associated the S3000 homogeneous solids, as assessed for this audit. An asterisk (*) denotes that an item is N/A as it was previously assessed as adequate and the associated objective evidence provided via the final audit report and checklist of Audit A-03-14. Items may also be annotated as N/A because they are associated with the actual analysis activities as performed by the INEEL and were previously assessed and approved via CBFO Audit A-03-15).

The audit team had previously determined that the AK process, as previously evaluated and certified by CBFO, is satisfactorily implemented and effective. During this audit, the audit team determined that the AK confirmation process (as related to S3000 solids) was adequate for the reconciliation of DQOs, and for sample design and data analysis. This audit also re-verified that Hanford is satisfactorily implementing the AK process to effectively delineate, characterize, and confirm the characterization of waste for disposal, in accordance with WIPP WAP requirements.

6.0 SUMMARY OF DEFICIENCIES

6.1 Corrective Action Reports

