



Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
December 12, 2003



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 Certification Audit Report A-04-07 for the Washington TRU Solutions LLC (WTS Central Characterization Project (CCP) Single-Sample Manifold Headspace Gas Sampling and Analysis System at the Hanford Site

Dear Mr. Zappe:

This letter transmits the CBFO Certification Audit Report A-04-07 for the CCP Single-Sample Manifold Headspace Gas Sampling and Analysis processes being performed at the Hanford Site to characterize and certify contact-handled debris waste Summary Category Group S5000. This audit report is provided in accordance with the requirements of Section II.C.2.c of the WIPP Hazardous Waste Facility Permit. The report contains the results of the certification audit performed in association with the processes employed by CCP for the characterization and certification of retrievably stored debris waste. The audit was conducted November 11-13, 2003.

I certify under penalty of law that this document and all enclosures 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. Inés R. Triay
Manager

Enclosure



Mr. Steve Zappe

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December 12, 2003

cc w/o enclosure:

K. Watson, CBFO	*ED
A. Holland, CBFO	*ED
D. Miehs, CBFO	*ED
M. Navarrete, CBFO	*ED
S. Martin, NMED	*ED
M. French, DOE RL	*ED
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C. Walker, Techlaw	*ED
K. Dunbar, WRES	
CBFO QA File	
CBFO M&RC	

U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

FINAL AUDIT REPORT

OF THE

WASHINGTON TRU SOLUTIONS (WTS)
CENTRAL CHARACTERIZATION PROJECT (CCP)
RICHLAND, WASHINGTON

SINGLE-SAMPLE MANIFOLD HEADSPACE GAS
SAMPLING AND ANALYSIS

AUDIT NUMBER A-04-07

November 11 – 13, 2003



Prepared By:

Chet Wright

Chet Wright, CTAC
Audit Team Leader

Date:

12-11-03

Approved By:

Ava L. Holland

Ava L. Holland, CBFO
Quality Assurance Manager

Date:

12/12/03

1.0 EXECUTIVE SUMMARY

The Central Characterization Project (CCP) was developed by Washington TRU Solutions (WTS) to provide transuranic (TRU) waste characterization, certification, and transportation services, including the necessary management and administrative functions to ensure the acceptability of these processes in accordance with regulatory requirements. The CCP provides these services under contract to the various waste generator sites that request support or lack the expertise, program infrastructure, or simply do not have the equipment to characterize TRU waste for shipment to the Waste Isolation Pilot Plant (WIPP) for disposal.

Fluor/Hanford has entered into an agreement with CCP to characterize Summary Category Group S5000 debris waste (S5000) at the Hanford Site. The Initial CBFO certification audit (A-03-25), was conducted in September 2003 to certify the CCP program for characterization of debris waste at the Hanford Site, excluding the single sample manifold headspace gas (HSG) sampling and analysis system

Carlsbad Field Office (CBFO) Audit A-04-07 was conducted to evaluate the adequacy, implementation, and effectiveness of HSG sampling, analysis, and associated activities utilizing the CCP single-sample manifold HSG sampling and analysis system.

The audit was conducted at the Hanford site in Richland, Washington, November 11–13, 2003. The audit team concluded that the single-sample manifold HSG sampling and analysis system and process employed by CCP for obtaining and analyzing HSG samples was adequate relative to the flow-down of requirements from the WIPP Hazardous Waste Facility Permit (HWFP). In addition, the audit team concluded that the CCP technical processes were satisfactorily implemented and effective.

The audit team identified two isolated deficiencies requiring only remedial corrective actions that were corrected during the audit (CDA). One Recommendation was offered for management consideration. One Observation was issued as a result of the audit.

2.0 SCOPE

The scope of the audit was to evaluate the CCP processes for adequacy, implementation, and effectiveness in performing automated drum penetration and representative sample collection, batch data validation and handling, analysis, methods and equipment calibration, and HSG performance demonstration associated with the single-sample manifold HSG sampling and analysis system. The evaluation also included compliance with the WIPP HWFP Waste Analysis Plan (WAP) and selected portions of the CBFO Quality Assurance Program Document (QAPD).

The following quality assurance (QA) elements were evaluated:

- Qualification and Training of HSG Personnel
- Quality Improvement
- QA Documents and Records

The following characterization technical elements were evaluated:

- Single Sample Manifold Headspace Gas Sampling and Analysis
- Single Sample Manifold Data Handling
- Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration
- Single Sample Manifold Data Validation
- Headspace Gas Performance Demonstration Program (HSG PDP)

The evaluation of CCP documents was based on the current revisions of the following documents:

- *WIPP Hazardous Waste Facility Permit*
- *CBFO Quality Assurance Program Document*, DOE CBFO-94-1012
- Associated CCP technical and QA implementing procedures

3.0 AUDIT TEAM AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Chet Wright	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Dorothy Gill	Technical Specialist, CTAC

OBSERVER

Steve Holmes	New Mexico Environment Department (NMED) via telephone during the afternoon audit caucus
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4.0 AUDIT PARTICIPANTS

Hanford/CCP personnel participating in this audit process are identified in Attachment 1. A pre-audit meeting was conducted at 2420 Stevens Center Drive, Room 153, in Richland, Washington, on November 11, 2003. Daily meetings were held with Hanford/CCP management and staff to discuss issues and potential deficiencies. The audit was concluded with a post-audit meeting conducted at 2420 Stevens Center Drive, Room 308, in Richland, Washington on November 13, 2003.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

The audit team concluded that the CCP technical and QA processes/procedures were adequate relative to the flow-down of requirements from the CBFO QAPD and the HWFP. Additionally, the audit team concluded that the CCP technical processes were satisfactorily implemented and effective.

The audit team concluded that the defined CCP QA program elements reviewed and/or verified were adequate and satisfactorily implemented in accordance with the CBFO QAPD, CCP Quality Assurance Project Plan (QAPjP), and applicable CCP implementing procedures for the areas evaluated. For details of the corrective action

reports (CARs), CDAs, observation, recommendation, and exemplary practices, see Section 6.

Audit activities, including the specific objective evidence reviewed, are described below. A list of procedures evaluated during the audit is included in Attachment 3.

5.2 Technical Activities

Each technical area audited is discussed in detail in the following sections. The method used to select objective evidence is also discussed and the results of the assessments are provided. The objective evidence used to assess compliance with the WAP is cited and contained in Attachment 4.

5.2.1 Table B6-1 WAP Checklist

The B6-1 WAP checklist addresses program requirements from a management perspective. It documents the verification that the waste characterization strategy, as defined in the WAP, is administered by using adequate and effective implementing procedures. This audit was performed to assess CCP's ability to operate and perform single-sample manifold HSG sampling and analysis. Objective evidence to evaluate the implementation of the associated characterization activities was selected and reviewed. Batch data reports, sampling records, measuring and test equipment calibrations, and training documentation established for CCP HSG personnel were included in the evaluation. The audit process included observation and verification of actual waste characterization activities (single-sample manifold HSG sampling and analysis). Each characterization process involves:

- Collecting raw data
- Collecting quality assurance/quality control (QA/QC) information
- Reducing the data to a useable format, including a standard report
- Review of the report by the data generation facility
- Comparing the data against program data quality objectives

The focus of the B6-1 checklist was to verify that CCP had implemented processes for the HSG unit that covered areas from equipment calibration through ensuring that the HSG program data quality objectives were met. Placing "NA" in the block on the B6-1 checklist indicates the checklist item is not applicable to the single-sampling manifold HSG sampling process.

It was determined through documentation review and verification of characterization activities during the audit, that CCP adequately demonstrated compliance with the characterization requirements of the WAP. CCP provided documentation to support compliance with the WAP. Copies of these documents are included in Attachment 4. They include the reviewed batch data reports and measuring and test certifications.

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

Solids and soils/gravel sampling are not within the scope of CBFO Audit A-04-07.

5.2.3 Table B6-3 Acceptable Knowledge Checklist

Acceptable knowledge (AK) processes are not within the scope of CBFO Audit A-04-07.

5.2.4 Table B6-4 Headspace Gas Checklist

Single-sample manifold HSG sampling and analysis and associated activities were reviewed during the audit. The Table B6-4, Headspace Gas Checklist, was completed by evaluating the following operating procedures:

- CCP-TP-007, *CCP Single-Sample Manifold HSG Sampling and Analysis*
- CCP-TP-009, *CCP Single-Sample Manifold Data Handling*
- CCP-TP-029, *Single-Sample Manifold HSG Sampling and Analysis Methods and Equipment Calibration*
- CCP-TP-032, *CCP Single Sample Manifold Data Validation*
- CCP-TP-056, *CCP HSG Performance Demonstration Plan*

Through verification and witness of single-sample manifold HSG sampling and analysis activities and personal interviews with CCP personnel, HSG operators demonstrated an acceptable level of competence with regard to their sampling responsibilities and duties. The audit team made a Recommendation in this area to initiate continued on-the-job training (OJT) for all HSG operators recently qualified (Recommendation 1). In addition, periodic oversight activities of this area should be considered by CCP QA. Associated HSG sampling processes were found to be well organized and systematically orchestrated. Batch data report generation and data validation processes were determined adequate and sufficiently comprehensive to meet the applicable WAP requirements.

During the audit, the automated drum penetration and representative sample collection utilizing the hollow stem self-drilling, self-tapping high efficiency particulate air (HEPA) filter were verified and accomplished in accordance with CCP-TP-007. Sample collection through the seal housing within the glove-box to the gas chromatography/mass spectrometer (GC/MS) and organic vapor analyzer (OVA) analytical systems were also verified and successfully accomplished in accordance with CCP-TP-007.

Although CCP is currently in the process of completing Cycle 17A at the Hanford site, the data produced to date is not supported by successful completion of the PDP samples as required by the CCP PDP Procedure CCP-TP-056, R/11, Section 4.1.2. An Observation was written to address this issue and presented for CCP management consideration (Observation 1).

Two concerns were identified during the audit: Bromofluorobenzene (BFB) stock standards purchased as certified standards in Class "A" glassware are not being stored at a temperature between -10 and -20 degrees centigrade as required by CCP Procedure CCP-TP-029, R/12, Section 4.1.1. The relative retention time (RRT) units

are not verified as being within the specified ± 0.06 RRT as required by CCP Procedure CCP-TP-029, R/12, Section 4.9.1.A.5 (CDAs 1 and 2).

The audit team concluded that the area of single-sample manifold HSG sampling and analysis employed by CCP at the Hanford Site is adequate, satisfactorily implemented, and effective.

5.2.5 B6-5 Radiography Checklist

Radiography is not within the scope of CBFO Audit A-04-07.

5.2.6 B6-6 VE Checklist

Visual examination is not within the scope of CBFO Audit A-04-07.

6.0 CORRECTIVE ACTIONS AND RECOMMENDATIONS

During the audit, the audit team may identify conditions adverse to quality (CAQ) and document such conditions on CARs.

Condition Adverse to Quality (CAQ) – An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies.

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

6.1 Corrective Action Reports (CARs)

No WAP-related CARs were generated as a result of CBFO Audit A-04-07.

6.2 Corrected During the Audit

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant, using the following definitions. Once a determination is made that a CAQ is not significant, the audit team member, in conjunction with the ATL, determines if the CAQ is an isolated case requiring only remedial action and, therefore, can be corrected during the audit (CDA). Upon determination that the CAQ is isolated, the audit team member, in conjunction with the ATL, evaluates/verifies any objective evidence/actions submitted or taken by the audited organization and determines if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL categorizes the condition as a CDA.

Condition Adverse to Quality (CAQ) – An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies. A significant condition adverse to quality is one, which, if uncorrected, could have a serious effect on safety, operability, waste isolation, TRU

waste site certification, regulatory compliance demonstration, or effective implementation of the QA program.

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

Two conditions adverse to quality were identified and corrected during the audit, therefore, resulting in two CDAs.

CDA 1

Bromofluorobenzene (BFB) stock standards purchased as certified standards in Class "A" glassware are not being stored at a temperature between -10 and -20 degrees centigrade as required by CCP Procedure CCP-TP-029, R/12, Section 4.1.1.

Corrective Action by Auditee

A new freezer was purchased by CCP and installed in the HSG sampling and analysis area. In addition, CCP NCR-HANF-0407-03 was written by the HSG subject matter expert (SME)/Operator to address the fact that BFB standards were stored above -10 degrees C, thereby initiating an evaluation to determine impact and future use of the standards in question. This action was verified accomplished during the audit, resulting in a CDA.

CDA 2

The relative retention time (RRT) units are not verified as being within the specified ± 0.06 RRT as required by CCP Procedure CCP-TP-029, R/12, Section 4.9.1.A.5.

Corrective Action by Auditee

Retention time windows are conservatively set at a maximum of ± 0.40 minutes. This parameter, coupled with retention times of the internal standards (>10 minutes), ensures that the maximum difference in RRT of 0.04, as compared to the initial calibration also ensures that a \pm RRT criterion is obtained. This action was verified accomplished during the audit, resulting in a CDA.

6.3 Observations

One Observation was written and presented for CCP management consideration as a result of CBFO Audit A-04-07.

Through review of available data presented by CCP, it was determined that the last PDP cycle successfully completed by this CCP equipment was Cycle 16A performed at the Nevada Test Site (NTS). Although CCP is currently in the process of completing

Cycle 17A at the Hanford Site, the drum HSG data produced to date is not supported by successful completion of the PDP samples as required by the CCP PDP Procedure CCP-TP-056, R/11, Section 4.1.2.

6.4 Recommendations

One Recommendation was presented for CCP management consideration as a result of CBFO Audit A-04-07.

To ensure knowledge of CCP procedural requirements and enhance operator confidence in the process of HSG sampling and analysis, a recommendation is made to initiate continued OJT for all HSG operators recently qualified. In addition, periodic oversight activities of this area should be considered by CCP QA.

7.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During the Audit
- Attachment 2: List of Procedures Audited
- Attachment 3: Corrective Action Supporting Documentation
- Attachment 4: Objective Evidence

PERSONNEL CONTACTED DURING AUDIT A-04-07

NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Franco, Joe	Project Manager WTS/CCP	X	X	X
Melton, Jessie	HSG SME/CCP	X	X	X
Uytioco, Elise	HSG/CCP	X	X	X
Nance, Sherie	SPQAO/CCP	X	X	X
Edwards, Jeffrey	HSG Chemist/CCP	X	X	X
Smith, Daniel	HSG Chemist/CCP	X		X
Smith, Richard	HSG Technician/CCP	X		X
Kergil, Tommy	HSG Chemist/CCP	X		X
Worden, Jason	HSG Chemist/CCP	X		X
Roberts, Kay	Executive Sectary/CCP	X		X
McDonald, Kent	WMP/STR/Fluor Hanford	X		X
Schrader, Todd	DOE Representative/Fluor Hanford	X		X
Dunn, Rick	SPM/Fluor Hanford	X		X
Maupin, Jim	SPQAO/CCP			X
Doherty, Mark	SPM/CCP	X	X	X
Klover, Steve	SPQAO/CCP		X	X

CCP PERSONNEL CONTACTED DURING THE AUDIT

Headspace Gas Sampling and Analysis	Doherty, Mark Franco, Joe Klover, Steve Melton, Jessie Uytioco, Elise Nance, Sherie Edwards, Jeffrey
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