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memorandum

Carlsbad Field Office
Carlsbad, New Mexico 88221

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SUBJECT: Report of Audit A-03-26 of Argonne National Laboratory-East, TRU Waste Characterization Activities Using the Services of the Washington TRU Solutions LLC, Central Characterization Project

TO: Angela Harvey, DOE ANL-E

The Carlsbad Field Office (CBFO) conducted a certification audit of the Argonne National Laboratory-East (ANL-E), TRU waste characterization activities using the contracted services of the Washington TRU Solutions LLC (WTS), Central Characterization Project (CCP) on August 26 and 27, 2003. Attached is the report for this audit. The audit team concluded that the ANL-E/CCP technical and quality assurance procedures and processes audited were adequate, were being satisfactorily implemented and were effective. As a result of the audit one Observation and one Recommendation were identified and presented for management action and consideration.

This audit verified that the ANL-E/CCP program for characterization of homogeneous solid waste was adequate, satisfactorily implemented and effective. With the use of the INEEL analytical laboratories, the ANL-E/CCP program effectively demonstrates implementation of a program that will ensure solids sampling and analysis, as well as implementation of the completed data verification and validation process for homogeneous solid waste. However, no shipments of this waste can be made to the WIPP until the INEEL analytical laboratories, solids sampling and analysis program is approved by NMED and certified by CBFO.

It should also be noted that approval for shipment of homogeneous solid waste (S3000) will be granted after completion and approval of the final audit report by the regulators.

If you have any questions or comments concerning this report, please contact me at (505) 234-7491.

for Dennis S. Miehls
Quality Assurance Specialist

Attachment

030909

cc: w/attachment
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U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

AUDIT REPORT
OF
ARGONNE NATIONAL LABORATORY-EAST
UTILIZING THE
CENTRAL CHARACTERIZATION PROJECT

Chicago, Illinois

AUDIT NUMBER A-03-26

August 26-27, 2003

TRANSURANIC WASTE CHARACTERIZATION AND CERTIFICATION PROGRAM

Prepared by: _____ for **Date:** 9/8/03
A. Earl Bradford, CTAC
Audit Team Leader

Approved by: _____ **Date:** 9/10/03
Ava L. Holland, CBFO
Quality Assurance Manager

1.0 EXECUTIVE SUMMARY

The Central Characterization Project (CCP) was developed by Washington (formally Westinghouse) 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 those waste generator sites that request support or lack the expertise, program infrastructure, or equipment to characterize TRU waste for shipment to and disposal at the Waste Isolation Pilot Plant (WIPP).

ANL-E has entered into an agreement with the CCP to characterize ANL-E debris (S5000) and homogeneous solid waste (S3000). CBFO audit A-02-03, September 2002 resulted in the certification of the CCP program for characterization of debris waste. CBFO audit A-03-13 conducted in February of 2003 verified that the already certified program and equipment was adequate for the physical characterization of homogeneous solid wastes, including the NDA, VE, RTR, and HSG sampling and analysis processes.

The scope of audit A-03-13 did not include verification of a solids sampling process, nor the processes needed for analysis of the solids samples. With the lack of these capabilities implemented, the CCP could not demonstrate the full capability to characterize of the solids waste stream. Additionally, there was no objective evidence that would demonstrate traceability of any solids containers throughout the AK confirmation process, including reconciliation of DQOs, verification of an adequate sample design, nor project level data verification and validation.

Rather than develop a solids sampling technique or the required sample analysis processes, the CCP elected to utilize the services of an independent analytical laboratory at the Idaho National Engineering and Environmental Laboratory (INEEL). The INEEL analytical laboratory will sample the ANL-E drums, perform the required solids analysis, including generation level data verification and validation and forward the analysis BDRs to the ANL-E / CCP program for final project level data verification and validation. The ANL-E / CCP program retains responsibility for the accuracy of the analysis data and will perform project level data verification and validation, i.e. AK confirmation. The INEEL analytical laboratories solids sampling and analysis program is audited and certified by CBFO.

Carlsbad Field Office (CBFO) Audit A-03-26 was conducted at the CCP offices in Carlsbad, New Mexico August 26 and 27, 2003, to finalize the evaluation of the CCP characterization and certification activities related to the ANL-E Solid wastes. The audit was conducted to evaluate the adequacy, implementation, and effectiveness of the CCP processes needed for Sample Design,

Reconciliation of DQOs and the administrative processes ensuring project level data verification and validation and the subsequent confirmation of 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 two previous ANL-E audits of the ANL-E / CCP 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 ANL-E, the solids sampling and solids sample analysis conducted at the INEEL, as well as the project-level data verification and validation processes conducted at the Carlsbad, NM CCP management offices. The documentation evaluated included objective evidence of initial characterization with mobile equipment at the ANL-E facility, sample design, the newly implemented solids sampling and analysis processes conducted at the INEEL, and project level data verification and validation, including AK confirmation activities conducted at the CCP offices in Carlsbad.

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 WIPP Hazardous Waste Facility Permit (HWFP), and the WIPP Waste Acceptance Criteria (WAC). The audit team also concluded that the assessed activities were being satisfactorily implemented in accordance with the CCP Quality Assurance Project Plan (QAPjP) and the implementing procedures. The established technical processes and the QA program were determined to be effective. A Summary Table of Audit Results is provided in Attachment 2.

The audit team did not identify any conditions adverse to quality (CAQs) that resulted in the issuance of a CBFO CAR. The audit team identified one Observation and one Recommendation that were offered for CCP management consideration. The Observation and Recommendation are described in Section 6.

2.0 SCOPE

CBFO Audit A-03-26 was conducted to verify the adequacy, implementation, and effectiveness of the CCP technical and administrative processes used to perform sampling and analysis of homogeneous solid waste generated at ANL-E. The audit team evaluated those processes used to assure adequate sample design, reconciliation of DQOs, and the project level data verification and validation activities needed to complete the AK confirmation process for S3000 waste in accordance with the CCP implementing documents. In addition, the audit team evaluated the interface responsibilities and contractual requirements that the ANL-E / CCP program has implemented to allow the use of the INEEL analytical laboratories for providing solids sampling and analysis services.

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

- QA Program Interfaces
- Procurement of analytical laboratory services
- Sample Control

The following technical elements were evaluated to verify compliance with the WAP and the WAC:

- Project-level data verification and validation (V&V)
- Sample Design / Reconciliation of DQOs
- AK Confirmation
- WAP, Section B6

The evaluation of 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,* by the 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/WIPP-02-3122

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

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

- *CCP Transuranic Waste Certification Plan,* CCP-PO-002

- Related CCP QA and technical implementing procedures (see Attachment 4)

3.0 AUDIT TEAM, INSPECTORS, AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Dennis Miehls	CBFO QA Specialist
Earl Bradford	Audit Team Leader, CTAC
Pete Rodriguez	Auditor, CTAC

Priscilla Dugger	Auditor, CTAC
Tammy Bowden	Auditor in training, CTAC
Dick Blauvelt	AK Technical Specialist, CTAC

OBSERVERS

Steve Holmes	NMED Observer
Ben Walker	EEG Observer

4.0 AUDIT PARTICIPANTS

A pre-audit conference was held in Carlsbad, NM in the Skeen-Whitlock Building, Room 237 on August 26, 2003. Daily management briefing meetings were held with CCP and ANL-E management to discuss the progress of the audit and potential deficiencies. The audit was concluded with a post-audit conference held in the Skeen-Whitlock Building in Carlsbad on August 27, 2003. A list of CCP and ANL-E personnel contacted during the audit are identified in Attachment 1.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

The audit team concluded that the CCP technical, QA and administrative procedures evaluated adequately reflect the appropriate requirements from the CBFO QAPD, the WIPP HWFP, and the WAC. The audit team concluded that the defined QA Program is being satisfactorily implemented in accordance with the CCP QAPjP and the CCP implementing procedures. The audit team determined that the CCP characterization activities, as described in the associated CCP implementing procedures, are adequate, satisfactorily implemented, and effective.

The audit team identified one Observation and made one Recommendation for improvement of the CCP processes. The observation and recommendation are described in Section 6. A Summary Table of Audit Results is provided in Attachment 2 and a list of CCP procedures evaluated during the audit is shown in Attachment 3.

5.2 Quality Assurance Program Audit Activities

The audit team had previously evaluated the adequacy and implementation of documents describing the general CCP QA program. Details of the previous audit activities, including the specific objective evidence reviewed, are contained in the audit checklists associated with the two prior audits (A-02-03 and A-03-13), and are maintained as CBFO QA records. Details of the audit activities, for this audit, including the specific objective evidence reviewed, are contained in

the audit checklists associated with this audit, and are also maintained as CBFO QA records.

The audit team determined that the CCP QA Program and implementing procedures were adequate, satisfactorily implemented, and effective.

5.3 Technical Activities

The following sections describe the technical activities reviewed during the audit.

5.3.1 Data Verification and Validation

The audit team evaluated the data V&V process for the solid wastes at the project level. Objective evidence of proper generation-level data reviews was verified by review of BDRs associated with each of the previously accepted processes including NDA, RTR, VE, and HSG. BDRs for the newly implemented solids analysis processes were also verified to be acceptable. This audit focused on the project-level data V&V and AK confirmation processes. This evaluation consisted of a review of BDRs generated at ANL-E and the BDRs generated for metal analysis and VE from the INEEL. CCP project-level reviews are accomplished in accordance with CCP Procedure CCP-TP-001. The audit team verified that the procedure adequately addresses the requirements of the CCP QAPjP. The audit team determined that overall, the V&V processes at the project level were adequate, satisfactorily implemented, and effective.

5.3.2 Acceptable Knowledge Confirmation / Reconciliation of Data Quality Objectives (DQOs) / Sample Design

The audit team had previously evaluated the AK process supporting the certification of ANL-E homogeneous solid waste to assure that activities were performed in compliance with the WAP requirements.

The confirmatory test process for solid waste has been completed for ten drums that had been processed. The audit team selected three drums from the population of ten and evaluated individual data packages for each of the characterization processes. The audit team verified the preparation of an accuracy report addressing the population of drums processed to date.

The audit team made one observation (Observation 1) that identified a condition that if not corrected could result in a future condition adverse to quality. In addition, the audit team made one recommendation (Recommendation 1) for improvement of the ANL-E / CCP data verification and validation process.

The audit team had previously determined that the AK documentation procedure and resultant AK Summary Report related to the solids waste stream were adequate and satisfactorily implemented, and that the AK development process

was effective. During this audit the audit team determined that the AK confirmation processes for the reconciliation of DQOs, and sample design and data analysis were adequate, satisfactorily implemented, and effective and in compliance with respect to the WAP requirements.

6.0 OBSERVATIONS, AND RECOMMENDATIONS

6.1 Observations

The audit team identified one condition that, if left uncorrected, could lead to a future condition adverse to quality. This condition has been reported as an Observation, and is being provided to CCP management for consideration.

Observation 1

Attachment 5 of CCP-TP-005, lists numerous hazardous constituents and other target analytes. The first column of the attachment is entitled "Suspected Present" and must be answered yes or no. While the justification for adding or not adding HWNs is documented in the AK summary report, there is no reference to the decision to expect constituents such as nickel, thallium, beryllium, etc. For the solids waste stream these constituents were listed as "not expected" and were detected during solids analysis, addressed on the AK confirmation checklist with changes made to Attachment 5. However, there is no text justifying the original assumptions.

6.2 Recommendations

The audit team provided the following Recommendation to CCP management for improvement of a CCP process and procedure.

Recommendation 1

RTR BDR AEETR025 contained an NCR issued at the SPM level that changed the TRUCON code for the ANL-E solids from AE229 to AE211. The NCR was initiated on 3/21/03 and corrective action required correction of the AK summary report. In addition, the AK summary report, CCP-AK-ANLE-001, Rev. 8, reissued on 4/1/03, added a new WMC for solids containing cement or aqua-set.

Three VE BDRs initiated during this time period and signed off by the SPM on 4/2/03 did not clearly address these changes. The SPM signed them knowing that the data presented would not be impacted. It is recommended that more verbage be added to the NCR corrective actions and BDRs associated with needed AK changes that more clearly explain the rationale for not updating impacted BDRs and/or the justification why data is not impacted.

7.0 ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit
Attachment 2: Summary Table of Audit Results
Attachment 3: CCP Documents/Procedures Evaluated During the Audit

PERSONNEL CONTACTED DURING THE AUDIT				
NAME	TITLE/ORG	PRE AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Becker, David	CCP AKE	X	X	X
Bickerstaff, Sheila	CCP Records Custodian	X		
Billet, Bob	CCP/ANL-E VPM	X		X
Burns, Tim	LANL-CO Mgr	X	X	
Calvert, Steve	CTAC QA Mgr	X		
Fisher, AJ	CCP Project QA Mgr	X	X	X
Freeze, Debbie	CCP Training Coordinator		X	
Gomez, Christine	CCP SPQAO	X	X	X
Gomez, Paul	CCP SPM	X	X	X
Haar, Dave	CCP Deputy Manager	X	X	X
Harrison, Jeff	CCP AKE	X	X	X
Hedahl, Tim	CCP Manager	X		X
Peters, Kevin	CCP AKE	X	X	X
Porter, Larry	CCP SPM		X	
Rose, Steve		X	X	X
Sharif, Farok	CCP Manager	X		X

Summary Table of Audit Results

QA / TECHNICAL ELEMENTS	CARs	CDAs	OBSs	RECs	Program Adequacy	Program Implementation	Program Effectiveness
Acceptable Knowledge Confirmation					A	S	E
Sample Design / Reconciliation of DQOs					A	S	E
Headspace Gas Sampling and Analysis					A*	S*	E*
Nondestructive Assay (APNEA/WIT)					A*	S*	E*
Real-Time Radiography (RTR)					A*	S*	E*
Organization / QA Program					A*	S*	E*
e-QA System / Software QA					A*	S*	E*
Procurement					A	S	E
Document Control					A*	S*	E*
Inspection/Test Control/M&TE for Data Collection					A*	S*	E*
Program Interfaces / Statement of Work					A*	S*	E*
CARs / NCRs / Corrective Action					A*	S*	E*
Project Level Data V&V					A	S	E
Visual Examination					A*	S*	E*
Audits & Assessments					A*	S*	E*
WWIS Data Entry					A*	S*	E*
Identification of Items / Handling, Storage, Shipping					A*	S*	E*
Personnel Qualification / Training					A*	S*	E*
QAPD Matrix / Graded Approach / Work Control Processes					A*	S*	E*
Records Management					A*	S*	E*
SUMMARY					A	S	E

CARs = Corrective Action Reports; **CDAs** = Corrected During the Audit; **OBSs** = Observations; **RECs** = Recommendations
ADEQUACY/EFFECTIVENESS STATEMENTS: A = Adequate; **S** = Satisfactory; **UNSAT** = Unsatisfactory; **E** = Effective; **I** = Indeterminate; **M** = Marginal;

A* = Verified to be Adequate during the previous certification audit;
S* = Verified to be satisfactorily implemented during the previous certification audits
E* = Verified to be effective during the previous certification audit

ANL-E/CCP DOCUMENTS/PROCEDURES EVALUATED DURING THE AUDIT

Number	Procedure Number/Rev	DOCUMENT TITLE
		CCP PROGRAM DOCUMENTS
1	CCP-PO-007 Rev. 6	CCP/ANL-E Interface Document
2	University of Chigago/WTS Contract/Statement of Work	Argonne National Laboratory-East (ANL-E) Statement of Work for Characterization of ANL-E TRU Waste
		CCP QUALITY ASSURANCE PROCEDURES
3	CCP-QP-015	CCP Procurement
		CCP TECHNICAL PROCEDURES
4	CCP-TP-001, Rev. 8	CCP Project Level Data Validation and Verification
5	CCP-TP-002, Rev. 11	CCP Reconciliation of DQOs and Reporting Characterization Data
6	CCP-TP-003, Rev. 12	CCP Sampling Design and Data Analysis for RCRA Characterization
7	CCP-TP-005, Rev. 11	CCP Acceptable Knowledge Documentation