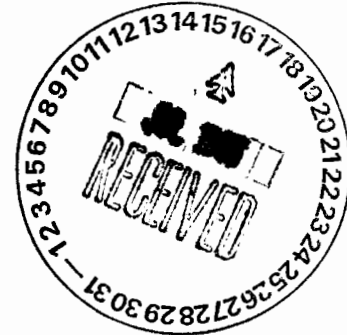


United States Government

Department of Energy

memorandum

Carlsbad Area Office
Carlsbad, New Mexico 88221

DATE: July 10, 1998
REPLY TO
ATTN OF: CAO:QA:SAV 98-0959 UFC 2300
SUBJECT: CAO Audit Report A-98-26
TO: Keith Klein, RFFO

The Carlsbad Area Office (CAO) conducted an audit (in conjunction with an EPA inspection) of the Rocky Flats Environmental Technology Site (RFETS) Waste Characterization and Certification activities on June 24-26, 1998. The audit team concluded that the RFETS technical and QA programs continue to adequately address the requirements of the CAO QAPD and QAPP. The audit team also concluded that RFETS procedures have continued to be satisfactorily implemented and the evaluated processes were still effective. The audit report is attached.

There were no CAO Corrective Action Reports issued as a result of the audit.

One observation and six recommendations were identified during the audit.

If you have any questions or comments concerning this report, please contact Butch Stroud at (505) 234-7483.

A handwritten signature in cursive script that reads "George T. Basabilvazo".

George T. Basabilvazo
Acting Assistant Manager
Office of Regulatory and Compliance Assurance

Attachment



Printed on recycled paper

980710



Keith Klein

- 2 -

July 10, 1998

cc w/attachment:

D. Brown, CAO

L. Chism, CAO

R. Stroud, CAO

T. Bowden, CTAC

M. Horseman, CTAC

D. Winters, DNFSB

J. Channell, EEG

C. Byrum, EPA

M. Eagle, EPA

K. Rogers, EPA

✓ S. Zappe, NMED

C. Wentz, NMEM&NR

A. Flewelling, RFETS/RMRS

G. O'Leary, RFETS/RMRS

J. Legare, RFFO

L. Xuan, RFFO

J. Stroble, WID



U.S. DEPARTMENT OF ENERGY
CARLSBAD AREA OFFICE

AUDIT REPORT

OF THE

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

AUDIT NUMBER A-98-26

JUNE 24-26, 1998

TRU WASTE CHARACTERIZATION AND CERTIFICATION



Prepared By: Samuel Vega Date: 7/9/98
Samuel Vega
Audit Team Leader

Approved By: R. Dennis Brown Date: 7/9/98
R. Dennis Brown
CAO QA Manager

Approved By: Robert A. Stroud Date: 7/9/98
Robert A. Stroud
CAO NTP Certification Manager

1.0 EXECUTIVE SUMMARY

Carlsbad Area Office (CAO) Audit A-98-26 was conducted to evaluate the continued adequacy, implementation, and effectiveness of the Rocky Flats Environmental Technology Site (RFETS) Transuranic (TRU) Waste Characterization and Certification Program. The assessment included the evaluation of technical and programmatic elements. At the same time that CAO was conducting this audit, EPA also was at RFETS conducting an inspection of the RFETS TRU Waste activities.

The audit was conducted at the RFETS facilities on June 24 through 26, 1998. The audit team concluded that the adequacy of the RFETS technical and quality assurance (QA) programs has continued to be satisfactory in meeting the CAO Quality Assurance Program Description (QAPD) and the CAO Quality Assurance Program Plan (QAPP). The audit team also concluded that the QA Program has continued to be satisfactorily implemented in accordance with the RFETS Quality Assurance Project Plan (QAPjP) and the RFETS implementing procedures for the five quality assurance elements that were audited. The technical areas evaluated were still determined to be implemented and effective.

The audit team did not identify any conditions adverse to quality that required the issuance of a CAR. Fourteen deficiencies, isolated in nature and requiring only remedial corrective actions, were corrected during the audit (CDA). Six recommendations have been offered for management action and consideration. One observation was identified in the area of the control of purchased services. The audit team noted one exemplary practice being performed by RFETS personnel. CDAs, the Observation, Recommendations, and Exemplary Practices are described in Section 6.0 of this report.

2.0 SCOPE

The audit team evaluated the continued adequacy, implementation, and effectiveness of technical and quality assurance processes related to the RFETS TRU Waste Characterization and Certification activities.

The following elements were evaluated in accordance with the CAO QAPD:

- Organization
- QA Program Implementation
- Document Control and Procedure
- Procurement
- Data Documentation, Control, and Validation

The following CAO characterization technical elements were evaluated in accordance with the CAO QAPP:

- Acceptable Knowledge
- Waste Characterization - NDA, RTR
- Visual Examination
- Data Validation, Usability, and Reporting
- Performance Demonstration Program (PDP)

The following software items were audited:

- The Waste and Environmental Management System (WEMS)
- The RFETS software interface with the WIPP Waste Information System (WWIS)

The evaluation of RFETS TRU Waste Characterization Program (TWCP) documents was based on the current revisions of the following documents:

- RFETS QAPjP for the Transuranic Waste Characterization Program, 95-QAPjP-0050
- RFETS Transuranic Waste Management Manual, 3-MAN-008-WM-001
- Related RFETS technical and quality assurance implementing procedures

3.0 AUDIT TEAM, INSPECTION TEAM AND OBSERVERS

CAO AUDIT TEAM

Sam Vega	Audit Team Leader
Butch Stroud	Audit Manager
Denny Brown	CAO QA Manager
Marlin Horseman	Auditor
Amy Arceo	Auditor
Norman Frank	Auditor
Jack Walsh	Auditor
Sid Ailes	Auditor/Technical Specialist
Mark Doherty	Technical Specialist
Ken Coop	Technical Specialist
Vann Bynum	Technical Specialist

OBSERVERS

- Jim Channell, EEG
- Elvin Dumas, INEEL

Dan Menkhaus, INEEL

4.0 AUDIT PARTICIPANTS

RFETS individuals involved in the audit process are identified in Attachment 1. A preaudit conference was held at the RFETS Building 111 Auditorium on June 24, 1998. A daily meeting was held with RFETS Management and staff to discuss issues and potential deficiencies. The audit was concluded with a postaudit conference held at the Building 111 Auditorium on June 25, 1998.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

The audit team concluded that the RFETS QA Program has continued to be adequate in meeting the requirements of the CAO QAPD, Revision 1 and the QAPP, Revision 0 and Interim Change 11/96. The audit team concluded that the RFETS QA and technical programs has continued to be satisfactorily implemented. For the technical areas evaluated, the RFETS programs were determined to be still effective.

5.2 QA Program Audit Activities

A summary table of audit results is provided as Attachment 2. Details of audit activities, including specific objective evidence reviewed, are contained within the audit checklists. The checklists are maintained as QA records.

5.3 Technical Activities

Evaluations of applicable RFETS technical activities are summarized below.

5.3.1 Nondestructive Assay (NDA)

Non-destructive assay (NDA) activities related to the Canberra Industries mobile assay systems used at the RFETS were evaluated for continued satisfactory implementation of procedures and the effectiveness of the process for assaying TRU waste drums. Both of the Canberra assay systems were in operation during the audit. The audit team observed waste assay operations and examined batch reports for both the neutron and gamma systems. As a result of the evaluation, Canberra made several changes and additions to their documents, in order to clarify or expand on the assay process. (CDAs 1, 5, 10, 12, 13, and 14).

At the completion of the audit, all checklist items were determined to be acceptable. One observation was made regarding the audit of the Canberra software change control and error reporting (Observation 1). The Canberra assay operations at the RFETS continued to be satisfactorily implemented and effective.

5.3.2 Data Validation and Waste Stream Profile Reports

Site Project Office data validation checklists and reports were reviewed for both the non-destructive assay and real-time radiography processes. Random selection of containers for visual examination and the calculation of the miscertification rate was examined by review of the appropriate records. No concerns were noted. The records for Waste Stream Profile Form RF003.01 were reviewed and found to be complete and correct. This area continues to be satisfactorily implemented and effective.

5.3.3 Real-Time Radiography

Real-Time Radiography operations were observed for a drum of debris waste. Tapes of several waste drums and a training drum scan were observed. Hardcopy reporting and data review and validation were reviewed using batch reports. No concerns were noted. This area continues to be satisfactorily implemented and effective.

5.3.4 Visual Examination

Visual examination operations were reviewed through the use of video tapes because actual waste visual examinations had been previously completed for the fiscal year. Two recommendations were made (Recommendations 3 and 4). The audit team recommended that the examination procedure be revised to more clearly discuss the segregation of prohibited items. The audit team also recommended that RFETS expedite the approval and use of upgraded communications equipment for the video taping operation. The communication upgrade was identified during the last audit but has not yet been approved for use. Batch reports were reviewed for completeness, proper review, and validation. The visual examination process continues to be satisfactorily implemented and effective.

5.3.5 Acceptable Knowledge

The acceptable knowledge (AK) process at RFETS was evaluated and continues to be satisfactorily implemented and effective. The *Acceptable Knowledge TRU/TRM Waste Stream Summaries* (RMRS-WIPP-98-100) and *RFETS TRU Waste Acceptable Knowledge Supplemental Information* (RF/RMRS-97-018) were assessed and these processes were also determined to be satisfactorily implemented and effective. These documents were generated in accordance with WIPP-003, *Collection, Review, and*

Confirmation of Acceptable Knowledge Documentation. During the review of RF/RMRS-97-018 it was discovered that one of the tables had been incorrectly typed (CDA 2). The audit team concluded that the actual data used was correct and there was no impact due to the typographical error. RMRS-WIPP-98-100 footnotes to the table of radionuclides implied that unresolved discrepancies existed. During the interview, it was discovered that there was insufficient information to fully characterize the radionuclide content of these wastes using AK alone and that a couple of footnotes were poorly worded (CDA 3).

The origin of some of the information within RMRS-WIPP-98-100 could be made clearer through the more extensive use of footnotes (Recommendation 2). It was verified during the audit that RFETS is confirming the AK information through Real-Time Radiography and Visual Examination. Any discrepancies uncovered during the confirmation process are flagged and a Nonconformance Report is prepared, resolved, reviewed by the AK Collector, and incorporated into the AK record. The discrepancy resolution and the AK update process would be enhanced by also implementing a process in which NDA data that conflicts with AK is flagged and provided to the AK Collector for inclusion in updates to the AK record (Recommendation 1).

5.3.6 Software

The adequacy and effectiveness of the RFETS software quality assurance program was evaluated for the control of software used for tracking data required by WIPP for the characterization and certification of TRU waste. The evaluation included the review and inspection of software maintenance, baseline configuration control, and the verification and validation activities for the WEMS. Approved baselines were in place and verification and validation testing activities were complete. Upgrades were underway to change the data entry and evaluation screens to use the Microsoft Windows Graphical User Interface. All changes were properly controlled through approved Software Change Requests and no operational problems were noted during the audit. The software processes continue to be satisfactorily implemented and effective.

6.0 CORRECTIVE ACTIONS/OBSERVATIONS & RECOMMENDATIONS

6.1 Corrective Action Reports

6.1.1 Verification of Previously Initiated CAO CARs:

There were no open CAO CARs.

6.1.2 CARs Initiated as a Result of CAO Audit A-98-26:

There were no CARs issued during CAO Audit A-98-26.

6.2 Deficiencies Corrected During the Audit (CDA)

1. The Canberra organizational responsibilities as described in Canberra procedure SQM-011 (Paragraphs 1.1.3 and 1.1.4) were not reflective of current practices. The procedure was revised.
2. The column headings in the AK supplemental AK document Table 4-12 were incorrect and were missed during review. Some confusing information, not pertinent to the document objective, was also present. The document was corrected.
3. Footnotes 1 & 2 of RMRS-WIPP-98-100, page 19 of 44 could imply that discrepancies exist which must be resolved. The actual situation is that insufficient information is available to designate the radionuclides and the information will be determined by NDA evaluation. The footnotes were clarified.
4. Training Rosters are not being properly completed. The "Instructor" blocks are either not being filled in or marked N/A for "required reading" or filled in for briefings. Two instances were noted. These were corrected as "required reading" and corrected copies were placed in the appropriate files".
5. The table on page 15, Appendix A, SQM-010 describing the dynamic range of matrices that can be assayed on the IQ-3 does not appear to be valid. Canberra eliminated a confusing table from Appendix A of SQM-010 and elaborated on the MDCs they can obtain for the IQ3 and PN instruments. These changes resolved the concern.
6. Electronic data transfer requirements for RFETS are specified in Section 9.0 of 4-K47-WEM-WP1210, Revision 0. However, Section 3.0 of 4-K47-WEM-WP-1212, Revision 0, requires that data entry into WWIS be performed in accordance with 1-PRO-110-WP-1212, Revision 0. Interviews with the TRU Waste Project Manager and WEMS system analyst indicated that WEMS characterization reports are not routinely signed or otherwise validated by the Project Manager as required by Section 2.3 of 1-PRO-110-WP-1212. These interviews determined that the manual data entry procedure is not implemented for electronic data transfer. As a result, no formal process exists to periodically verify that data transferred to WWIS is not modified or lost. Two procedure modifications were made during the audit to address this condition. Document

Change Form 98-RMRS-DCF-064 was issued to procedure 1-PRO-X05-WC-4018, Revision 0 to establish a periodic check of the integrity of the WEMS data contained in WWIS. This spot check will be performed by the Waste Certification Official and will document, as part of the shipment certification, the verification of data integrity by comparing the WWIS Waste Container Data Report and the WEMS generated WWIS Certification Report.

7. Section 3.0 of 4-K47-WEM-WP1210, Revision 0 requires that data entry into WWIS be performed in accordance with 1-PRO-110-WP-1212. However, interviews with the TRU Waste Project Manager and WEMS system analyst indicated that WEMS characterization, certification, and shipment reports are not maintained as records as required by Section 6.0 of 1-PRO-110-WP-1212. These interviews determined that the manual data entry procedure is not implemented for electronic data transfer and the intent is to maintain the reports as electronic records in the database. Document Change Form 98-RMRS-DCF-064 was issued to modify 4-K47-WEM-WP1210, Section 10.0 to clearly reference the method to be used to maintain WEMS data as an electronic record.
8. The decision to use declared rather than measured isotopics appeared to be arbitrary. The rationale for the decision was explained by RFETS and determined to be acceptable.
9. The audit/inspection team felt that the software QA/Test procedure might not be adequate to reconcile data submitted to WIPP with data in WEMS. RFETS revised the procedure (4-K47-WEM-WP1210, Revision 0) for electronic transmission to indicate that manual transmission was used only when electronic means could not be used.
10. The training file for one Canberra operator did not include a resume as required by procedure. The resume was obtained and placed in the training file.
11. RFETS procedure PLN-97-007, Revision 2 required clarification of the requirements for qualification and documentation. Change #1 was issued to add a footnote to the appropriate positions in Attachment 1.
12. Canberra management had not documented the review of the personnel qualification files to verify that each person met the requirements for their assigned position. A Canberra letter from John Tomburro, VP, Customer Services to Mr. Paul Pigeon, RMRS provided evidence of a review of the qualifications for the necessary personnel.

13. Canberra procedure SQM-010 required revision to add the requirement to check that assay measurements fall within the range of calibration and other revised criteria to the form SGFM-003, "NDA Generation Level Data Review, Validation, and Verification Checklist." SQM-010 was revised to include Revision 3 of the form with the two additional review criteria.
14. Canberra was not sending the complete raw data (zip files) to RFETS. These zip files contain raw data that are not included in the batch reports. Calibration records and the verification of calibrations were also not being sent. Three Canberra transmittals were provided to the RFETS Project Data Control Offices (3323, 3325, and 3599). These included IQ3 and PN zip files (electronic) and calibration reports for SGS, PN, and IQS.

6.3 Observations

1. Based upon the evidence presented in the audit report and the audit checklist, the RFETS audit of Canberra did not evaluate software change control and error reporting processes in accordance with NQA-2, Part 2.7. As a result of this audit, G. A. O'Leary sent a letter to Dave Torczon requesting a surveillance of Canberra's Software Quality Assurance activities.

6.4 Recommendations

The following six recommendations were identified by the audit team:

1. There is no procedure to flag new AK arising from NDA to ensure that it is included in future AK assessments (e.g. the current AK indicates that waste stream is WG Pu whereas the NDA shows it's an Am stream). It is recommended that flagging of this information be included in the appropriate procedure.
2. The origin of the information in some of the tables in RMRS-WIPP-98-100 could be made clearer through the more extensive use of footnotes.
3. Section 6.0 of 4-H80-776-ASRF-007, Visual Examination, does not provide examples of NCR conditions encountered during VE activities such as liquids, pyrophorics, etc. The team recommends this be included within the appropriate section of the procedures.
4. Communication between the Visual Examination Operators and the Visual Examination Expert is marginal because of the radiation containment between them. The audio needs to be improved so that clear descriptions of the waste

can be made ensuring the examination. RFETS has taken action to make these changes; however, the approval to use radios in Building 776 for this operation has not yet been approved by DOE-AL.

5. It is recommended that RFETS continue to use the Discrepancy Resolution Flow Charts.
6. The audit team recommends that Canberra formalize the reports that document achievement of QAOs for gamma and neutron systems.

6.5 Exemplary Practices

The WEMS software has recently been upgraded to allow for automated, electronic data transfer to the WIPP Waste Information System (WWIS). This code modification has resulted in a highly effective method of data transfer, totally eliminating manual data entry into WWIS by RFETS personnel. During the audit, sample data were entered into WEMS and then transferred to WWIS to verify the correct and efficient transfer of waste package data. The transfer was completed within 10 seconds, and the software automatically prompted the user for required interactions. Even the updating of the WEMS data to reflect the WWIS data and certification status was controlled by the software and the necessary user prompts guided the process. The system worked smoothly, with minimal server transfer delays. No error checks or system failures were noted, indicating a fully operational system. The WEMS data transfer process is so accurate and efficient that it serves as a model for other sites for handling waste package data transfer.

7.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During the Audit
- Attachment 2: Summary Table of Audit Results

PERSONNEL CONTACTED DURING THE AUDIT

RFETS PERSONNEL CONTACTED				
NAME	ORG/TITLE	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Anderson, Scott	K-H/TRU Program. Integrator	X	X	
Ater, Edgar L.	RMRS/SAIC/TRU Waste Projects/Quality Engineer	X	X	X
Bastton, Johnnie	K-H/Contracts/Manager		X	
Booth, Lee	Canberra/NDA Project Manager	X	X	X
Carson, Pete	RMRS/LATA TRU Waste Project	X		
Cramer, Doug	Canberra/Operator		X	
Cront, Steven K.	K-H /CPE & I Special Projects	X		
D'Amico, Eric	RMRS/Projects Manager Designer	X	X	X
Davidson, Dorothy	Canberra/Tech-QA Liaison	X	X	X
Davis, Robert E.	K-H CP E&I/Lead Special Projects	X	X	X
Demonect, Jan	K-H/Site Operations	X		
DiSalvo, Rick	RFFO-OCC/Attorney	X		
Edrich, Pamela W.	RMRS/Waste Systems/Tech. Manager	X	X	X
Ferguson, Jim	RMRS/SEG TRU Waste Projects	X		
Ferrera, Carol	Horne Engineering/Waste Oversight/Waste Certification Official		X	X
Flewelling, Art	RMRS/TRU Waste Project QA Officer	X	X	X
Goade, Dan	RMRS/Program Engineer	X	X	X
Grady, Frank	RMRS/TRU Waste Project Engineer	X	X	X

RFETS PERSONNEL CONTACTED				
NAME	ORG/TITLE	PRE-AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Hansen, Sonja	RMRS/ATA TRU Waste Projects	X	X	X
Kercher, Ann	RMRS/SEG TRU/TRM Waste Projects	X	X	X
Kirschenmann, Harley	RMRS/TWCP Support	X		X
Kline, Keith	DOE-RFFO Deputy Manager, Technical Programs	X		
Kuttas, Larry	NDT/RTR/NDT Tech		X	
Legare, Joe	DOE-RFFO Assistant Manager, Environmental Compliance			X
Lenarcic, Kenneth	RMRS/Transportation Certification Officer	X		
Manford, R. E.	DCI Proc./Subcontract Administrator		X	
Maxwell, Dave	RMRS/TRU Waste Programs	X		
McGavin, Andrew M.	RMRS/Document Control Manager	X	X	
Morse, Joan R.	RMRS/Waste Systems/System Analyst	X	X	X
O'Leary, Jerry	RMRS-RFETS/TRU Waste Project Manager	X	X	X
Parker, Alan	K-H/Vice President	X		X
Peters, Kevin J.	Wastren/Waste Systems Support	X	X	X
Pigeon, Paul	RMRS/TWCP Training Officer	X	X	X
Polvtchko, S. K.	K-H Procurement Sub Admin.		X	
Robledo, Ron	RMRS/LATA/TRU Waste Project	X	X	X

CAO Audit A-98-26 Detail Summary

Requirements Documents	No. of Pages	Concern Classification				QA Evaluation		Technical	
		CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness	
QAPJP									
2.1	Organization	4					A	S	E
2.2	Document Control, Procedure	5					A	S	E
2.3	Training	N/A		4,10,11,12			A	S	E
2.5	Procurement	13					A	S	E
2.7	Software (WEMS, WWIS)	12		6,7,9	1	2	A	S	E
3.0	Data Validation - Level 2	6					A	S	E
4.0	Acceptable Knowledge	6		2,3		1	A	S	E
9.0	NDA - Canberra	10		1,5,8,13,14		5,6	A	S	E
10.0	RTR, Visual	16				3,4	A	S	E
TOTALS		72	0	14	1	6	A	S	E

Definitions

E = Effective

S = Satisfactory

I = Indeterminate

M = Marginal

N/A = Not Applicable

U = Unsatisfactory

CAR = Corrective Action Report

CDA = Corrected During Audit

NE = Not Effective

Obs = Observation

Rec = Recommendation

A = Adequate

NA = Not Adequate