

# memorandum

Carlsbad Field Office  
Carlsbad, New Mexico 88221

DATE: November 28, 2000

REPLY TO  
ATTN OF: CBFO:QA:SAV:VW:00-1346:UFC:2300

SUBJECT: Audit Report A-00-12, Rocky Flats Environmental Technology Site (RFETS)  
Characterization of Waste

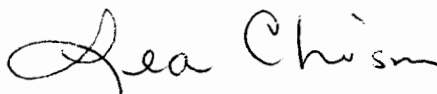
TO: Joseph Legare, Assistant Manager for Environment and Compliance

The Carlsbad Field Office (CBFO) conducted an audit of the Rocky Flats Environmental Technology Site (RFETS) waste characterization program for Summary Category Groups S3000 and S5000. The audit was conducted September 18-22 and November 1-2, 2000. The audit team concluded that the RFETS technical and quality assurance programs for these activities were adequate in accordance with the WIPP Hazardous Waste Facility Permit and the CBFO QAPD. The audit team also concluded that the RFETS procedures were being satisfactorily implemented and the evaluated processes were effective.

As a result of the audit, one CBFO Corrective Action Report (CAR) was forwarded under separate cover.

Six Observations and three Recommendations were also identified during the audit. Neither the Observations nor Recommendations require a response.

If you have any questions or comments, please contact me at (505) 234-7423.

  
for Samuel A. Vega  
Quality Assurance Manager

Attachment

001134



cc: w/attachment  
L. Chism, CBFO  
K. Watson, CBFO  
B. Bennington, CBFO  
J. Jeffries, RFFO  
M. Eagle, EPA  
S. Zappe, NMED  
B. Walker, EEG  
D. Winters, DNFSB  
C. Ferrera, RFETS  
J. O'Leary, RFETS  
T. Bowden, CTAC  
C. Riggs, CTAC  
M. Gerle, WID



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

**AUDIT REPORT**

**OF THE**

**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE**

**GOLDEN, COLORADO**

**AUDIT NUMBER A-00-12**

**September 18-22, 2000**

**and**

**November 1-2, 2000**

**AUDIT REPORT OF WASTE CHARACTERIZATION OF REPACKAGED  
DEBRIS AND HOMOGENEOUS SOLID WASTES**



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

Charles L. Riggs  
Audit Team Leader

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

11/27/00

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

for Samuel A. Vega  
CBFO QA Manager

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

11-28-00

## 1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-00-12 was conducted to evaluate the adequacy, implementation, and effectiveness of the Rocky Flats Environmental Technology Site (RFETS) transuranic (TRU) waste characterization activities for repackaged debris waste and homogeneous solid waste relative to the requirements detailed in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit and the CBFO Quality Assurance Program Document (QAPD).

The audit scope included Summary Category Group S5000 debris waste and S3000 solid waste, in particular, repackaging activities for wet and dry debris waste and homogeneous solid salt and ash wastes. A new headspace gas (HSG) unit, four new nondestructive assay (NDA) units, and supporting laboratory activities were also evaluated during the audit.

The initial audit was conducted at the RFETS facility September 18-22, 2000. The audit team concluded at that time that the overall adequacy of the RFETS technical and Quality Assurance (QA) programs, as applicable to audited activities, was satisfactory in meeting requirements. The audit team also concluded that the defined QA and technical programs for these activities were being implemented in accordance with the RFETS Quality Assurance Project Plan (QAPjP) and its implementing procedures and that the processes were effective.

However, the audit team was not able to complete its checklist for confirmatory testing since no HSG data was available at that time. Furthermore, although levels one and two data validation was performed for the testing that had been accomplished, there was no comparison of those data to the Acceptable Knowledge (AK) record. In addition, the audit team was not able to complete a traceability analysis for a container in the S3000 category, as required by the Hazardous Waste Facility Permit (HWFP). These activities are planned to be the subject of CBFO audit A-01-05.

The mass spectrometer used to detect and quantitate target analytes for the NucFil on-line headspace gas (HSG) unit in building 991 was not operational at the time of the initial visit. A follow-up visit was performed November 1-2, 2000 to evaluate this HSG unit. RFETS was still unable to demonstrate the operation of the HSG unit due to a failed filament; therefore, the unit is not included in this report and will be evaluated during a future audit. Headspace gas sampling will continue to be conducted at RFETS by previously audited and approved methods.

The audit team identified one condition adverse to quality, resulting in the issuance of one Corrective Action Report (CAR) concerning nondestructive assay sources that did not meet requirements. Nine deficiencies, isolated in nature and requiring only

remedial corrective actions, were Corrected During the Audit (CDA). Six Observations and three Recommendations were also identified. The CAR, Observations, and Recommendations are described in Section 6.0.

## **2.0 SCOPE AND PURPOSE**

### **2.1 Scope**

The audit team evaluated the adequacy, implementation, and effectiveness of the RFETS TRU waste characterization processes for repackaged debris waste and homogeneous solid waste.

The following elements were evaluated:

#### Quality

- Organization
- Grading
- Control of Nonconforming Items
- Personnel Qualification and Training
- Documents and Records
- Software
- Measuring and Test Equipment

#### Transportation

- TRUPACT II Operations
- Waste Certification
- Transportation Activities

#### Technical

- Acceptable Knowledge (AK)
- Headspace Gas Sampling and Analysis Online Unit
- Gas Generation System
- NDA-Can/Drum Skid Tomographic Gamma Scanner (TGS)
- NDA-Can TGS
- NDA-Neutron Multiplicity Counters
- NDA-Segmented Gamma Scanner (SGS) Drum Counter
- Laboratory-Total Metals
- Laboratory-TCLP Metals
- Laboratory-VOC/SVOC
- Residues-Ash Visual and Sampling

Residues-Dry Visual  
Residues-Salt Visual and Sampling  
Residues-Wet Visual  
Residues-F-Test  
Data Generator Level Verification and Validation  
Project Level Verification and Validation and WWIS Data Entry  
Misc.-Drum Tracking System and Box and Go

The evaluation of RFETS 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.

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

*Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, DOE/WIPP-069

*Safety Analysis Report for TRUPACT-II Shipping Package*, Appendix 1.3.7,  
Revision 18, TRAMPAC, Revision 18, and the TRUPACT-II Certification of  
Compliance, NRC 71-9281, Revision 11

*RFETS Quality Assurance Project Plan for the Transuranic Waste Characterization  
Program*, 95-QAPjP-0050, Revision 4, December 9, 1999

*RFETS Transuranic Waste Management Manual*, 1-MAN-008-WM-001,  
Revision 4, August 25, 2000

Related RFETS technical and quality assurance implementing procedures

## **2.2 Purpose**

Audit A-00-12 was conducted to assess the level of compliance of RFETS 'Residue  
Wastes,' repackaged debris and homogeneous solids waste characterization activities.

### **3.0 AUDIT TEAM AND OBSERVERS**

#### **AUDITORS/TECHNICAL SPECIALISTS**

Sam Vega	Quality Assurance Manager, CBFO
Charlie Riggs	Audit Team Leader, CTAC
Jack Walsh	Auditor, CTAC
Steve Davis	Auditor, CTAC
Wayne Ledford	Auditor, CTAC
Dee Scott	Auditor, CTAC
Steve Calvert	Auditor, CTAC
Earl Bradford	Auditor, CTAC
Jim Schuetz	Auditor, CTAC
Jeff May	Auditor, CTAC
Dorothy Gill	Technical Specialist, CTAC
Randy Fitzgerald	Technical Specialist, CTAC
Ken Coop	Technical Specialist, CTAC
William Verret	Technical Specialist, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Trey Greenwood	Technical Specialist, CTAC
Jim Bresson	Technical Specialist, CTAC
Tom Ward	Technical Specialist, WID

#### **INSPECTORS**

Scott Monroe	Environmental Protection Agency
Patrick Kelly	Sanford Cohen Associates (EPA)

#### **OBSERVERS**

Steve Zappe	New Mexico Environment Department
Will Fetner	New Mexico Environment Department
Connie Walker	TechLaw Inc. (NMED)
William Fear	TechLaw Inc. (NMED)
Robert Thielke	TechLaw Inc. (NMED)
June Dreith	TechLaw Inc. (NMED)
Lisa Brunley	TechLaw Inc. (NMED)
Ben Walker	Environmental Evaluation Group

### **4.0 AUDIT PARTICIPANTS**

RFETS individuals contacted during the audit process are identified in Attachment 1. A pre-audit meeting was held at RFETS Building 460 on September 18, 2000. A daily meeting was held with RFETS management and staff to discuss the previous day's issues and potential deficiencies. The audit was concluded with a post-audit meeting

held at RFETS Building 460 on September 22, 2000. A follow-up visit was made November 1-2 to verify operation of the NucFil Headspace Gas Unit.

## **5.0 SUMMARY OF AUDIT RESULTS**

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

The audit team concluded that the applicable RFETS TRU waste characterization activities, as described in the associated RFETS implementing procedures, satisfactorily meet requirements. Audit activities, including objective evidence reviewed, are described below and in CBFO checklists and/or Objective Evidence Reviewed forms maintained as QA records. Attachment 3 contains a list of RFETS procedures included in the audit.

### **5.2 Quality Activities**

The audit team examined the following QA areas: Control of Nonconforming Items, Personnel Qualification and Training, Documents and Records, Organization, Grading, Software, and Measuring and Test Equipment. There were no concerns identified in these areas. Overall, the Quality Activities were found to be adequate, satisfactorily implemented, and effective.

### **5.3 Technical Activities**

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

#### **5.3.1 Acceptable Knowledge**

The audit team reviewed the entire RFETS AK process, beginning with the collection and review of AK records and the assignment of required waste matrix codes, waste material parameters, hazardous waste numbers and other relevant/required AK information. The audit focussed on homogeneous waste, in particular salt residues and ash. Results of confirmatory testing for salt and ash were reviewed. However, no headspace gas sampling data were available for these waste streams. These data cannot be collected until appropriate drum age criteria (DAC) time has passed, as required by the Hazardous Waste Facility Permit. Other areas of the AK process that were examined include supplemental information, reassessment procedures, and records and databases.

Several concerns were raised by the audit team:

There was no documented traceability in the AK record back to process flow diagrams for the waste generating process for salt. The referenced flow diagrams were only for the repackaging and/or salt stabilization processes. There were appropriate flow



diagrams in historical Waste Stream and Residue Identification and Characterization (WSRIC) documents but the traceability to those documents had not been maintained. (CDA 1)

The accuracy report did not reflect changes in waste matrix code (WMC) or hazardous waste numbers identified during salt repackaging and VE that occurs during that operation. RFETS changed procedures to reflect that cans that were mislabeled or drums in which more than 50% of the cans have a different WMC than that assigned to the drum should be counted as discrepancies (CDA 2).

The audit team was not able to complete its checklist for confirmatory testing since no HSG data were available. Furthermore, although levels one and two data validation had been performed, there was no comparison of that data to AK. In addition, the audit team was not able to complete a traceability analysis for a container in the S3000 category as required by the HWFP. These activities are planned to be the subject of Carlsbad Field Office audit A-01-05.

RFETS AK documentation was judged by the audit team to be adequate. However, because of the need to perform a follow-up audit, AK program implementation and effectiveness for solids is judged to be indeterminate at this time.

### **5.3.2 Headspace Gas**

The audit team observed headspace gas sampling and analysis operations of the NucFil on-line unit in Building 991. Documentation specific to these activities, e.g., calibration records, maintenance logbooks, and instrument logbooks, were reviewed. The areas audited were well organized and reflected a commendable degree of commitment to producing high quality, defensible, and compliant data. Two areas of concern were noted; the use of an un-calibrated syringe for QC/calibration purposes (CDA #5) and the calibration interval for a temperature sensor (CDA #4).

At the time of the audit in September, the mass spectrometer used to detect and quantitate the target analytes was not operational. It was not possible, therefore, to perform a complete audit of these activities.

These activities and associated batch data reports were reviewed to evaluate sampling and analysis results against WAP requirements on a revisit, November 1-2, 2000. During the revisit, the unit burned out a filament while NucFil personnel tried to demonstrate its operation. The batch data reports were not adequate for RFETS/WIPP WAP requirements.

Therefore, HSG analysis using the NucFil on-line unit will be audited in its entirety during a future audit.

### **5.3.3 Metals Analysis**

The audit team evaluated metals sample preparation and analysis and associated instrumentation and equipment. The audit team also reviewed the metals data reporting process, data packages, records, and associated training records. It was noted that manual data entry is used to input analytical results into the software program that generates the field quality control (QC) relative percent difference (RPD) and F-Test results. The audit team suggests that the possibility of electronic transfer of analytical data for field QC calculations be investigated (Recommendation #1). No conditions adverse to quality were observed.

Overall, metals analysis was found to be adequate, satisfactorily implemented, and effective.

### **5.3.4 VOCs/SVOCs**

The audit team examined volatile organic compound (VOC) analysis and semi-volatile organic compound (SVOC) extraction and analysis activities, including Gas chromatograph/Mass Spectrometer GC/MS determination of VOCs, extraction of total SVOCs for GC/MS analysis, and GC/MS determination of total SVOCs. The audit team also reviewed VOC and SVOC data reporting process, data packages, VOCs and SVOCs records, and associated training records. No significant conditions adverse to quality were observed.

Overall, VOCs/SVOCs were found to be adequate, satisfactorily implemented, and effective.

### **5.3.5 Repackaging**

#### **Salts**

The audit team witnessed glovebox operations in Building 371 and reviewed a series of batch data reports from earlier salt residue repackaging operations in Buildings 371 and 707. The audit team reviewed several completed batch data reports and noted that the Independent Technical Reviewer had not initiated an NCR against an activity that was not performed correctly (CDA 3).

The audit team witnessed glovebox operations for the salt repackaging process that included removing the salts from storage cans, batching and blending, size reduction (as necessary), visual examination, and repackaging into new containers. The audit

team also witnessed sampling of the residues; a representative sample was packaged and labeled. The audit team also witnessed the operators preparing process and sampling documentation as work was completed.

### **Ash**

The audit team witnessed glovebox operations in Building 707 and reviewed several completed batch data reports. No concerns with these reports were identified.

The audit team witnessed glovebox operations for the ash residue repackaging process that included removing the ash from storage cans, batching and blending, visual examination, and repackaging into new containers. The audit team also witnessed actual sampling of the residues. The sampling operation uses the "cone and quarter" method to thoroughly mix the material and to separate out a representative sample that was packaged in sample containers and labeled. The audit team also witnessed the operators preparing process and sampling documentation as the work was completed.

### **Dry**

The audit team witnessed glovebox operations in Building 707 and reviewed a series of batch data reports from earlier dry residue repackaging operations.

The audit team witnessed glovebox operations for the dry residue repackaging process that included removing the dry residues from storage cans, sieving, batching and blending, visual examination, and repackaging into new containers. The team also witnessed the operators preparing process and sampling documentation as the work was completed.

### **Wet**

The audit team witnessed glovebox operations in Building 371 and reviewed a series of batch data reports.

The audit team witnessed glovebox operations for the combustible residue repackaging process. The audit team witnessed glovebox processing of the residues that included sorting, size reduction (as necessary), visual examination, and repackaging into new containers. The audit team also witnessed the operators preparing process documentation as the work was completed.

Overall, repackaging was found to be adequate, satisfactorily implemented, and effective.

### **5.3.6 Verification and Validation**

Verification and validation (V&V) at both the Data Generator and Project levels was reviewed during the audit. Several batch data reports were reviewed to assess Site Project Office data review, verification, and validation.

The audit team noted that the Site Quality Assurance Officer (SQA) and Site Project Manager (SPM) project level data reviews are not fulfilling their intended purpose (see Observation 4). Reviews are not consistent between packages. The SQA checklist item to confirm that data forms are complete and data has been reported correctly was marked N/A (CDA #6).

Overall, verification and validation were found to be adequate, satisfactorily implemented, and effective.

### **5.3.7 Gas Generation**

The audit team examined Gas Generation Testing Program (GGTP) activities including operation of the Mobile Gas Generation Testing and Sampling System (MGSS) located in the basement of Building 371. It was noted that the baseline adjustment for the continued calibration verification (CCV) was not performed in accordance with procedure PRO-962-MGSS-001, Appendix 3. Furthermore, the CCV was documented as acceptable without a nonconformance or other documentation being initiated to address this occurrence (CDA #7).

Overall, gas generation testing was found to be adequate, satisfactorily implemented, and effective.

### **5.3.8 Nondestructive Assay**

#### **Tomographic Gamma Scanner Can Counters and Skid Mounted Can/Drum Counter**

The audit team evaluated the following Tomographic Gamma Scanner (TGS) units in Building 371:

- Skid Mounted TGS (371TGS01); a Los Alamos National Laboratory (LANL) designed and built system capable of assaying waste cans and drums
- TGS Can Counter (371TGS02); an AnTech system, the product of technology transfer between LANL and AnTech
- TGS Can Counter (371TGS03); a second AnTech system exactly like 371TGS02

The audit team reviewed calibration data, quality assurance objective (QAO) verification data, and assay data packages. The validation process establishes calibration factors for the specific residue wastes to be assayed and a matrix-specific minimum detectable concentration (MDC). In addition, precision and accuracy determinations form a basis for establishing total measurement uncertainty (TMU).

TGS operations and records were reviewed and evaluated and determined to comply with applicable procedures. Assay data package records are prepared on forms that accurately reflect requirements in the operating and calibration procedures. The data are assembled on a batch basis and traceable to individual waste containers. Assay batch data reports were determined to comply with applicable WIPP reporting requirements.

The TGS units are located in areas of significant radiation background. This situation appears to be readily correctable, either by relocating the TGS units to a lower radiation background or by installation of adequate radiation shielding (Recommendation #2).

Overall, the TGS Can Counters and TGS Skid Mounted Can/Drum Counter were found to be adequate, satisfactorily implemented, and effective.

### **Segmented Gamma Scanner**

The audit team briefly observed the operation of the Segmented Gamma Scanner (SGS) instrument in Area 664. Previously, this instrument had only been used to obtain isotopics information for use in conjunction with the mobile passive neutron (PN) instrument. One object of this audit was to qualify the SGS for stand-alone assays of waste drums.

As part of the audit team's examination of the process, an independent technical reviewer (ITR) was observed reviewing one of the data packages for a stand-alone SGS assay. The audit team was concerned with the thoroughness of the ITR review but this was resolved during the audit (CDA 8). A concern (Observation 5) was also identified regarding erroneous information contained in the testing batch data reports. The audit team determined that two of the three standards sources used to demonstrate compliance with Quality Assurance Objective (QAO) requirements were outside the range of sizes permitted by the Waste Acceptance Criteria (WAC) (CBFO CAR-00-034). Total measurement uncertainty (TMU) was determined to be satisfactory.

Because of the conditions addressed in CBFO CAR 00-034, the audit team judged that the use of the SGS in stand-alone mode is not currently effective. This judgement does not apply to continued use of the SGS for isotopics measurements, as approved in previous audits.

## **Neutron Multiplicity Counter**

The audit team observed the operation of the two neutron multiplicity counters (NMC)/Transuranic Isotopic Fraction Interrogation Device (TRIFID) instruments in Building 707. The two TRIFID gamma instruments are used to verify Pu isotopics and determine isotopics for other non-Pu isotopes. Generally, the TRIFID confirms that Pu is consistent with AK. The isotopics information is then combined with neutron measurements made on two NMC can counters to obtain assay values for all isotopes. The total measurement uncertainty (TMU) was satisfactory. The audit team had a suggestion regarding background measurements for the TRIFID instruments (Recommendation 3) and one item concerning completeness of the testing batch data reports was Corrected During the Audit (CDA 9).

Overall, the NMC/TRIFID instruments were found to be adequate, satisfactorily implemented, and effective.

### **5.3.9 TRUPACT-II Operations/Waste Certification/Transportation**

The audit team observed the assembled payload for and the loading and leak testing of TRUPACT-II S/N-136. Data sheets for TRUPACT-II S/N-136, S/N-135, and S/N-137 were reviewed, including Waste Certification Official (WCO) data sheets, travelers, and transportation documentation for RFETS shipment RF000031 that included these TRUPACT-IIs.

The audit team noted that significant improvements in procedures, knowledge, training, work area layout, and conduct of operations have been implemented in all areas since the last transportation audit at RFETS. The audit team also appreciated the cooperativeness of RFETS personnel.

Overall, TRUPACT-II operations, waste certification, and transportation were found to be adequate, satisfactorily implemented, and effective.

## **6.0 CORRECTIVE ACTIONS, OBSERVATIONS, and RECOMMENDATIONS**

### **6.1 Corrective Action Reports**

One CAR was initiated during the audit.

#### **6.1.1 CAO CAR 00-034**

Data contained in the report for demonstration of nondestructive assay quality assurance objectives for the Canberra mobile segmented gamma scanner, No. D-6297,

QAO-SGS-MOBILE, Rev B, dated 09/07/00 were obtained with sources that do not meet the requirements of SQM-009, Revision 7, *Operating and Calibrating the Canberra SGS*, for two of the three ranges reported. No data or results were reported for a fourth range.

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

Nine deficiencies requiring remedial action only were identified during the audit. All nine were corrected before the completion of the audit. These are identified in the completed audit checklists and documented on CDA forms, which are maintained as QA Records.

## **6.3 Observations**

An Observation documents marginally acceptable conditions that, if not controlled, might later escalate into a deficiency.

### **Observation 1**

The wet combustible process relies on the Item Description Code (IDC) for describing the waste items being visually verified. While the batch data reports reviewed during the audit contain descriptions that meet HWFP requirements, there is a risk using the current practice of not documenting an adequate waste description during wet combustible repackaging. For instance, in batch data report CRR-DR-371-C-005, IDCs 330, 336, and 337 were repacked with absorbent. A note was added to the comments section of the data sheet stating that absorbent was used. Without this note, the waste description would not be complete because the IDCs would not identify that absorbent is present. RFETS should ensure that the waste description is complete, which may include a combination of the IDC and supplementary comments. This would include a description of other IDCs constituting less than 10% of the waste matrix, as allowed by wet combustible repackaging procedures.

### **Observation 2**

The project level data reviews (Site Quality Assurance Officer and Site Project Manager) are not fulfilling their intended purpose. Reviews are not consistent between packages.

- Determination of the completeness of Quality Assurance Objectives has been applied incorrectly and not consistently calculated using the same data points between packages.

- Items documented as deficient are accepted for use without adequate explanation of how the determination that the data was usable was made. Example; approval for use of data with surrogate spikes out of limits.
- The SPM checklist is completed and signed based solely on checklist signatures. The SPM does no independent review to determine if previous reviews were adequate.
- The SQAQ Volatile Organic Analyte (VOA) checklist did not include a question regarding surrogates.

### **Observation 3**

CBFO has not developed the data usability criteria to ensure that the assessment of data by generator sites is consistent. Subsequently, RFETS does not have any established data usability criteria.

### **Observation 4**

Independent Technical Review (ITR) checklists for metals/toxicity characteristic leaching procedure (TCLP) and VOAs should be more detailed. In addition, as the ITR checklists are completed (for all areas) the ITR should provide references to areas of the data package that supports data quality determinations made.

### **Observation 5**

SGS batch data reports indicated two types of TMU values that were incorrect: 1) hand prepared radioassay data sheets used when AK default isotopics are used in the assay calculations show a TMU that is too large and, 2) total alpha activity TMU is too small. Neither of these values is used in subsequent calculations or is reported to WIPP in the WIPP Waste Information System (WWIS).

### **Observation 6**

Documentation for NDA activities (TGS Can Counters) is poorly organized to the extent that it would be impossible to answer questions regarding what NDA personnel did or did not do without someone explaining how two or three separate records relate to each other. All actions, practices, etc. by personnel were in compliance, the issue was the documentation of their actions.



## **6.4 Recommendations**

### **Recommendation 1**

Manual data entry is used to input analytical results into the software program that generates the field QC RPD and F-Test results. There is a potential for data entry errors which would then result in invalid RPD and F-Test results. The possibility of electronic transfer of analytical data to field QC should be investigated.

### **Recommendation 2**

The TGS NDA equipment is located in Bldg. 371, in areas of relatively high and fluctuating radiation dose rates (2-8 mrem/hr). These levels are caused by movement of waste and residue containers in the room where some of the assay equipment is located and plutonium stored in a vault below the room. Because of the radiation background, NDA system background control limits have been exceeded on a number of occasions. Recommend that the area used for the TGS system be shielded or the equipment be relocated to an area with lower background.

### **Recommendation 3**

Recommend that background-check measurements be performed at least weekly on the TRIFID instruments used in conjunction with the NMC neutron instruments.

## **7.0 LIST OF ATTACHMENTS**

Attachment 1: Personnel Contacted during the Audit

Attachment 2: Summary Table of Audit Results

Attachment 3: Table of Audited RFETS Implementing Procedures

# PERSONNEL CONTACTED DURING THE AUDIT

RFETS PERSONNEL CONTACTED DURING AUDIT A-00-12				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Ailes, Sid	TWCP/SAIC; SQA		X	
Antimary, Steve	Wet Comb; Tech Support		X	
Atencio, Leonard A.	Informatincs; Dry Repack Supervisor	X	X	
Ater, Ed	TRU/MSQA; TRU Project Engineer	X		X
Atuney, Dave	Salt Supervisor		X	
Baca, Tom	KH/Matl stewardship; VP			X
Ballenger, R. J.	TRU Program; Manager Residues, Audit Program	X	X	X
Barone, Gary S.	Wet Comb; Pro Spec		X	
Beeler, Dewitt L.	KH/QP; Site QA Manager	X		X
Best, Ronald	GGTP; GGT		X	
Blunn, Donald A.	Dry Repack; Tech Supervisor		X	
Bowser, Barry	LATA; GGTP QAO	X	X	X
Bradford, Jeff	Low level and other waste Project Manager	X		X
Brailsford, Marvin	KH; VP Material Stewardship	X		
Brown, R. Dennis	DB Associates; Consultant		X	
Brugh, Mark	559 Labs; Inorganic Lab Manager	X	X	X
Carson, Pete	North Wind; TRU Program	X	X	X
Carter, J	Wet Comb; D&D		X	

**RFETS PERSONNEL CONTACTED DURING AUDIT A-00-12**

<b>NAME</b>	<b>ORG/TITLE</b>	<b>PREAUDIT MEETING</b>	<b>CONTACTED DURING AUDIT</b>	<b>POST- AUDIT MEETING</b>
Castagneri, Mark	NucFil; Director Engineering		X	
Chinn, Mary Ann	Wet Comb; D&D Skilled		X	
Crowe, Steve	KH/Material Stewardship; ESH&Q Manager	X		X
D'Amico, Eric	TRU Program; Environmental Scientist	X	X	X
Dahl, David	MS; QA/NDA	X	X	X
Davidson, Craig	Canberra; Mobile NDA PM	X	X	X
Davidson, Dorothy	Canberra, VP/PM	X		X
Davis, Robert E.	MS QA Manager	X		X
Dinkel, Robert D.	441 Traffic; Sr Spec			X
Donoholle, T. P.	SAIC/NDA Meas.; Tech Sup		X	
Dosallz, S.	Wet Comb; Prod Lead		X	
Dowd, Tim	Process Specialist		X	
Dreher, David	SSOC; NDA OPS Manager	X	X	X
Edmiston, Douglas R.	GGT; Wet Comb.	X	X	
Engholm, Eric L.	Ash; D&D Skilled Trades		X	
Eschenbaum, R. A.	TRU Program; WIPP Audit Lead	X		X
Eschenbaum, Ron	GGT/BNG Manager; Wet Comb.	X	X	X
Fairchild, Rob A.	Wet Comb; Proc Spec Verifier		X	
Ferguson, Jim	GTSD/TRU Project; Engineer	X	X	X

## RFETS PERSONNEL CONTACTED DURING AUDIT A-00-12

NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST- AUDIT MEETING
Ferrera, Carol	KH TWCP QAO	X	X	X
Fischer, Sherrie	ALWPF; File Custodian		X	
Fisher, A. J.	SSOC; QA Manager			X
Fisher, Doug	Salts; SME	X	X	
Fleissner, John	Canberra, Tech Dir	X	X	
Florez, Herman	Glove Box; Salt Operator		X	
Freeburg; Jeff	Tenera; GGTP Manager	X	X	
Fuller, John E.	Ash; SME		X	
Gaumond, Gwen	IRM; DTRK Devl		X	
Geisinger, Gregg	LLWC&O; WCO		X	
Glacomiui, Jo	KH/MS; Dep PM	X		
Grady, Frank	RMRS/TRU Waste Projects; TRU Project Engineer	X	X	X
Guthrie, David	LATA; Rad Labs	X	X	
Guyn, Terry	KHPQA; QA Engineer		X	
Hadacek, M. W.	371 QA Manager	X		
Hallman, Anne	WC&O/Weston/Waste Certification	X	X	
Harris, Mike	SSOC/Rad Labs; Chemist		X	
Harrison, Jeff	Wastren/RMRS; Engineer		X	X
Heath, David	KH; Mgr/Data Quality	X	X	X
Hillman, Dan	RTS	X	X	
Hoelzle, Frank C., III	Wet Comb; Proc Spec Operator		X	

RFETS PERSONNEL CONTACTED DURING AUDIT A-00-12				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Holwager, LeeAnn	I H&S; health & safety		X	
Hunter, Duane	KH/Labs; Manager	X		X
Jennings, John	NucFil; Chemist		X	
Jennings, Mike	KH/TRU Programs	X		X
Jensen, Roger	RRT Labs		X	
Johnson, James R.	NucFil		X	
Johnson, Jim	Nucfil; Supervisor Ops		X	
Johnson, Laura	Rad Labs; Sample Coordinator		X	
Johnson, Mickey	Salt Residue; SME	X	X	
Jones, Mark	Wet; Operator		X	
Jordan, Bruce	RT Labs; RRT Lab Tech		X	
Joseffy, David	Nuclear Filter; Headspace Consulting Engineer	X	X	
Kangas, Mark	TRU Program, SME F-Test	X		X
Kayler, Larry	SAIC; NDA Measurements	X	X	X
Kershner, Ron	DOE/RFFO/QPD	X		
Keyser, Randy	Complex Technical; Dry Project	X	X	X
Kinstad, Laura	Wet; Operator		X	
Kirschenmann, Harley	SMQA; Staff Engineer	X	X	X
Kleckner, John	TRU Waste Program; AK Engineer		X	
Klein, Michael D.	Wet Combustible Residue Repack, WIPP Lead	X		

RFETS PERSONNEL CONTACTED DURING AUDIT A-00-12				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Kocol; S. M.	Ash; HRT		X	
Krenzer, Bob	Dry Residues, Engineer	X	X	
Krupp, Gene	LATA/TRU Waste Project	X	X	
Leifer, John	GTSD/TRU Waste Project	X	X	X
Lenarcic, Ken	Traffic; Traffic Manager			X
Lewis, Leslie	TRU Projects	X		X
Liken, David	Wet; Operator		X	
Lopez, D. J.	Wet Comb; Process Spec		X	
MacLeod, Adrienne	Wet; Drum Tracker/Operator		X	
Malloy, Randy	Dry Residues; SME/AK-Dry	X	X	X
Martin, E. Ray	Material Stewardship; Mgr		X	
Mattson, Martin	Metrology, Tech Support		X	
Mazza, Yvonne	559 Labs; Metals Chemist	X	X	X
McGavin, Andrew	Source One; Manager	X	X	X
Mcguire, Niles	Ash; Tech Support		X	X
McInroy, Larry	SAIC/NDA; Data Mgt Mgr		X	
McKinney, Ruth	Source One; Program Manager	X	X	X
McLellan, Jeana	SOM; Sup WRC Micrographics	X	X	
Moody, David	Wastren; Project Level V&V		X	
Morse, Joan	Waste Systems; Sys Analyst		X	
Mullen, Chuck	Repack SME		X	

RFETS PERSONNEL CONTACTED DURING AUDIT A-00-12				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Muscatello, Tony	LANL/KH; NDA Liaison		X	
Nicholson, M. R.	SWO; Process Spec.		X	
Nishimoto, Gregg	DOE/RFFO; RFFO Residue Program	X		
Nolan, Cliff	Labs; Lab Tech		X	
Nolan, Thomas C.	LIMS Admin; 559 LIMS Admin		X	
O'Leary, Jerry	KH/TRU Waste Project Manager	X	X	X
Onderco, Kate	MS/Trng and Qual Coord	X	X	
Papp, Michael J.	Waste Systems (AK); Principal Engineer		X	
Pelz, Greg	Ash; HRT		X	
Peterson-Wright, Laurie	LATA; 707 Closure, Ash Project	X		
Phillips, Karen	SSOC/TRU Waste; Senior Principal Engineer	X	X	X
Pigeon, Paul	Material Stewardship/Training Programs; TWCP Training Officer	X	X	X
Pitts, Mark A.	Wet Comb; Supervisor		X	
Pizzuto, Vic	KH; 707 Closure	X		
Plankinton, Mike	KH; Ash/Dry Project	X	X	X
Putnam, Thomas	WC&O/Weston/ Waste Certification	X	X	X
Rademacher, Ted A.	Dry Repack; Operator		X	
Rampe, John	RFFO/DAMEI			X

RFETS PERSONNEL CONTACTED DURING AUDIT A-00-12				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Reynolds, Joe	B559 Labs; LPQAO	X	X	X
Rieber, Kim	IRM; Project Manager	X	X	X
Rivera, Mike	LATA; Orphan TRU Waste Program	X		
Robbins, Elver	DOE/RFFO/QPD			X
Robledo, Ron	CTS/RMRS; Environmental Engineer			X
Rodgers, Alan	KH/WM; Mgr.			X
Rodgers, Gail	Dry Repack; Project Spec.		X	X
Rolston, Greg	Informatics; Ash Project	X		
Ryan, John T.	Wet Comb; Foreman-Tech I		X	
Sayre, Leslie	Dry Residues, Production Manager	X	X	
Schafer, Steve	Wastren/RMRS/Waste Systems; Env Scientist		X	
Schierlon, John	LATA; GGTP Technical Supervisor	X	X	
Seipp, Doug	RRT Labs		X	
Sendelweck, Vivian	TRU Programs; AK Engineer	X	X	X
Seyfert, Warren	DOE/RFFO; ESD	X		
Sgrignoli, R. D.	Wet Comb; Deputy Proj Lead		X	
Shekell, Grace	Ash; D&D		X	
Shepley, Todd	Canberra; NDA Operator		X	
Sherrill, Dee	KH, Mgr/Measurements	X		X



RFETS PERSONNEL CONTACTED DURING AUDIT A-00-12				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Simmons, Bill	SSOC/Labs; Chemist			
Singh, Michael J.	Wet Comb PM	X	X	
Small, Bernard	Dry Repack; RRT		X	
Smart, Kim	KH/IRM; Manager		X	X
Smith, Linda C.	KH/Quality Program Mgr	X		
Smith, Scott	TWCP; AK Env Eng		X	X
Sorenson, Tim	Dry Repack; Operator		X	
Starks, Jerome	Dry Repack; Operator		X	
Sterkel, Scott L.	RRT Labs		X	
Stewart, Daniel L.	Residue QAE	X	X	X
Stewart, Judith	NDA QA; QA/QC Engineer		X	X
Thorualdson, Bill	707 Closure; Ash Project	X	X	X
Tressell, John	MSQA; TRU Waste QA, PQAQ Alternate	X	X	
Turner, Charles A.	Laboratory Manager	X	X	X
Twiford, C. S. (Terry)	MGSS; Ops		X	
Tyler, Reg	DOE/RFFO; ER/WM Team Lead	X		X
VanFleet, D. L.	Ash; D&D/Proc Shc		X	
Wachter, Joe	Canberra, NMC SME	X	X	X
Watkins, Jeanette L.	441 Traffic; Sr Spec, Alt TCO			X
West, John	SSOC/Rad Labs; Chemist		X	
Wolfe, Mike	SOM; Waste Records Center Manager		X	

RFETS PERSONNEL CONTACTED DURING AUDIT A-00-12				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Wood, Justin	Ash; D&D		X	
Xuan, Lam	DOE/RFFO/ERWM; WIPP Coordinator	X		X
Zodrow, Charles	IRM; Project Lead		X	

### Summary Table of Audit Results

Documents	Concern Classification				QA Evaluation		Technical
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
<b>Activity</b>							
NONCONFORMANCE					A	S	E
TRAINING					A	S	E
DOCUMENT CONTROL AND RECORDS					A	S	E
M&TE					A	S	E
SOFTWARE					A	S	E
ORGANIZATION/GRADING					A	S	E
ACCEPTABLE KNOWLEDGE		1, 2			A	I	I
HEADSPACE GAS		4, 5			A	I	I
GAS GEN TEST PROGRAM		7			A	S	E
VOC/SVOC					A	S	E
METALS				1	A	S	E
TGS CANS				2	A	S	E
TGS SKID CANS			6		A	S	E
SGS	1	8	5		A	S	U
NMC		9		3	A	S	E
REPACK SALTS		3			A	S	E
REPACK ASH/WET/DRY			1		A	S	E
TRANSPORTATION					A	S	E
WSPF					A	I	I
VERIFICATION AND VALIDATION		6	2, 3, 4		A	M	M
WWIS					A	S	E
SWB					A	S	E
TGS SKID DRUM					I	I	I
TOTALS	1	9	6	3	A/A	S/I	E/I

#### Definitions

E = Effective

S = Satisfactory

I = Indeterminate

M=Marginal

CAR = Corrective Action Report

CDA = Corrected During Audit

NE = Not Effective

Obs = Observation

Rec = Recommendation

A = Adequate

NA = Not Adequate

## RFETS PROCEDURES AUDITED FOR A-00-12

No.	Procedure Number	Title
1	PRO-484-WIPP-003, Revision 2	Collection, Review, and Confirmation of Acceptable Knowledge Documentation
2	RF/RMRS-97-018, Revision 7	RFETS TRU Waste Acceptable Knowledge Supplemental Information
3	RMRS-WIPP-98-100, Revision 9	Acceptable Knowledge TRU/TRM Waste Stream Summaries
4	PRO-404-RS-0145, Revision 4	Data Review and Verification, Ash Residue Repack Batch Reports
5	PRO-428-RS-0146, Revision 2	Data Review and Validation of Ash Residue Repack Sampling Batch Reports
6	PRO-X56-RS-0123, Revision 4, DC-04	Ash Residue Repack, Building 707
7	RS-012-005, Revision 2	Ash Residue Repack Solid Sampling and Analysis Plan
8	RS-020-012, Revision 1, DC-01	Ash Residue Repack Project, Building 707 Process Control Plan
9	PRO-822-DR&V-371, Revision 0, DC-01	Data Review & Verification of Wet Combustible Residue Batch Reports
10	PRO-823-REPACK-371, Revision 0, DC-06	Combustible Residue Repackaging
11	PRO-964-CAN REPACK- 371, Revision 0	Wet Combustible Residue Repacking, Room 3515
12	RS-020-018, Revision 1, DC-01	Combustible Residue Repackaging Process Control Plan
13	PRO-X32-RS-0128, Revision 6, DC-01	Dry Residue Repackaging, Building 707
14	RS-020-013, Revision 1, DC-02	Dry Residue Repacking Process Control Plan
15	PRO-110-WP-1212, Revision 0, 99-RMRS- DCF-197	WIPP Waste Information System (WWIS) Data Entry
16	4-K47-WEM-WP1210, Revision 1, 99-RMRS- DCF-194	WEMS Offsite Shipping Module
17	L-4028-M	Sample Administration for the Radiological Laboratories
18	L-4035-L	Data Review and Validation for Total Metals for WIPP-TRU Waste Characterization Program (TWCP) Data Generation Level
19	L-4108-D	Toxicity Characteristic Leaching Procedure (TCLP) for Metals in Waste
20	L-4150-G	Total Metals Acid Digestion Procedure of Solid, Liquid and TCLP Extract Samples
21	L-4151-I	Waste Analysis by Atomic Absorption Spectroscopy
22	L-4152-I	Mercury Analysis in Water (Cold-Vapor Technique)
23	L-4153-G	Trace Metals by ICP Spectrometry (Solids, Liquids, and TCLP Extracts)
24	L-4039-C	WIPP Data Review and Validation for Semi-Volatile Organic Compounds (in Solid Samples)
25	L-4214-C	Extraction of Total SVOCs for GC/MS Analysis for WIPP
26	L-4215-C	GC/MS Determination of Total SVOCs for WIPP

## RFETS PROCEDURES AUDITED FOR A-00-12

No.	Procedure Number	Title
27	L-4038-C	WIPP Data Review and Validation for Volatile Organic Compounds in Solid Samples
28	L-4165-I	GC/MS Determination of Volatile Organic Compounds (Solids, Liquids, and TCLP Extracts)
29	PRO-604-RC-001, Revision 1, DC-03	Field Sample QC Data Calculation, Review and Validation Batch Reports
30	PRO-543-ASD-002, Revision 2	Initiation and Preparation of Chain of Custody Forms
31	PRO-908-ASD-004, Revision 0	On-Site Transfer and off-Site Shipment of Samples
32	L-1000-R	Requirements for Radiological Laboratories L-Procedures
33	L-4026-K	Records Handling, Storage, and Retrieval for the WIPP Project File
34	ASD-003, Revision 1	Identification System for Reports and Samples
35	4-W84-RS-0114, Revision 5	Salt Residue Stabilization/Repack, Building 707
36	PRO-264-RS-0141, Revision 4, DC-01	Data Review and Validation of Salt Residue Batch Reports
37	PRO-544-SALT REPACK- 371, Revision 3, DC-01	Salt Residue Repack, Building 371
38	PRO-603-RS-0152, Revision 1, DC-02	Data Review and Verification of Salt Residue Repack Sampling Batch Reports
39	PRO-860-RS-0156, Revision 0, DC-02	Building 371 and 707 Salt Residue Sampling
40	RS-012-004, Revision 2, DC-02	Salt Residue Sampling and Analysis Plan
41	RS-020-021, Revision 1, DC-01	Salt Residue Repack, Building 371 and Building 707 Process Control Plan
42	1-C80-WO1102-WRT, Revision 1, 99-RMRS- DCF-412	Waste/Residue Traveler Instructions
43	WIPP-010, Revision 6	WIPP TRU Waste Characterization Project Level Data Review and Reporting
44	PRO-944-WIPP-008, Revision 2	Completion of Waste Stream Profile Form for Waste to be Disposed of at WIPP
45	HSG-002, Revision 1	Data Handling and Reporting Procedure
46	HGS-003, Revision 1	First Level Data Validation Procedure
47	HSG-005, Revision 2	On-line Gas Sampling System Cleaning and Verification Procedure
48	HSG-100, Revision 2	Headspace Gas Characterization Machine Sampling and Analysis Methods and Equipment Calibration for Compliance with the 1999 WIPP Waste Analysis Plan
49	NFT-TWCP-TWID001, Revision 0	Transuranic Waste Interface Document for the Nuclear Filter Technology, LLC (NucFil) Headspace Gas Sampling and Analysis at Rocky Flats Environmental Technology Site (RFETS)
50	PRO-1032-Headspace, Revision 0	Building 991 Headspace Gas Sampling and Analysis Operation
51	PRO-1044-HSG-004, Revision 0	Compressed Gas Cylinder Change-Out Procedure
52	PRO-984-440-HSGS, Revision 0	Building 440 C-Cell Operations Headspace Gas Sampling
53	PLN-97-007, Revision 7, DCF-CHG-01	TRU Waste Characterization Program Training Implementation Plan
54	95-QAPjP-0050, Revision	TRU Waste Characterization Program Quality Assurance Project Plan (TWCP QAPjP)

## RFETS PROCEDURES AUDITED FOR A-00-12

No.	Procedure Number	Title
	4, Chg 02	
55	1-MAN-008-WM-001, Revision 4, DC-4	Transuranic (TRU) Waste Management Manual (TWMM)
56	INS-246, Revision 7	Transuranic Waste Characterization Project (TWCP) QAPD Procedure Matrix
57	PRO-486-WIPP-006, Revision 1	TRU Waste Characterization Project Quality Assurance Grading
58	1-T13-TRAFFIC-306, Revision 2, DCF# 00-CSS- DCF-0052	Labeling and Marking TRUPACT Packages
59	4-T04-TRAFFIC-204, Revision 0, DCF# 00-CSS- DCF-0023	Waste Shipment Preparation Certification Form, RF-46416
60	4-T20-TRAFFIC-505, Revision 2	Certifying Authorized Payloads for TRUPACT-II
61	4-T43-TRAFFIC-528, Revision 3	TRUPACT-II Operations Flow
62	1-PRO-X05-WC-4018, Revision 1	Transuranic (TRU) Waste Certification
63	PRO-291-TPO/WO/5035, Revision 1, DCF-2000- RMRS-DCF-116	TRUPACT-II Verification Leak Test, Building 664
64	PRO-489-TRU-664, Revision 0	TRUPACT-II Operating Instructions for Building 664
65	PRO-830-DRUM-371, Revision 0	Drum Loading into Standard Waste Boxes
66	PRO-1018-SWB-371, Revision 0	Standard Waste Boxes Drum Selection and Grouping
67	PRO-845-NDA-008, Revision 0, DC-02	Data Review, Verification, and Validation for Nondestructive Assay (NDA) Measurement Systems
68	PRO-687-TGS-371, Revision 1, DCF-06	Operating the Tomographic Gamma Scanner (TGS)
69	00-NDA-TGS-002, Revision 0	Qualification Plan for the Can Counter Tomographic Gamma Scanner (TGS)
70	371-TGS-02	Qualification Report for the Can Counter TGS – Unit 1
71	371-TGS-03	Qualification Report for the Can Counter TGS – Unit 2
72	PRO-864-TGS-371, Revision 1, DCF-01	Setup and Calibration for the Can Counter Tomographic Gamma Scanner (TGS)
73	00-NDA-TGS-001, Revision 1	Qualification Plan for the Skid Mounted Tomographic Gamma Scanner (TGS)
74	371-STGS-01 (IDC 411R)	Building 371 Skid TGS Can Counter (ID 371-STGS-01) Calibration and Qualification Report
75	Unnumbered	Calibration and Qualification Report for Drums
76	LA-UR-00-2955	Determination of the Total Measurement Uncertainty for the RFETS Skid Mounted TGS and Can TGS
77	PRO-701-TGS-371, Revision 3, DCF-01	Setup and Calibration for the Skid Mounted Tomographic Gamma Scanner (TGS)
78	PRO-697-MLC-00013, Revision 0, DCF-02	Preparation and Certification of nondestructive Assay Standards and Sources

## RFETS PROCEDURES AUDITED FOR A-00-12

No.	Procedure Number	Title
79	PRO-845-NDA-008, Revision 0, DC-02	Data Review, Verification, and Validation for Nondestructive Assay (NDA) Measurement Systems
80	PRO-1072-NDA-MSQ, Revision 0	Matrix Specific Qualification for NDA Can Counters
81	00-NDA-NMC-100, Revision 0	Qualification Plan for the Neutron Multiplicity Counters (NMC) and TRIFIED Gamma-Ray Isotopics Systems
82	707-NMC01 (IDC 370)	Qualification Report for NMC – Unit 1
83	707-NMC02 (IDC 370)	Qualification Report for NMC – Unit 2
84	PRO-728-NDA-001, Revision 1, DC-05	Operating the Neutron Multiplicity Counters and TRIFID Gamma-Ray Isotopic Systems
85	PRO-933-NMC-002, Revision 0	Neutron Multiplicity Counters (NMC) and TRIFID Systems Setup and Calibration
86	TMU-SGS, Revision A	Total Measurement Uncertainty for the Canberra Segmented Gamma Scanner NDA Systems
87	SQM-009, Revision 6	Operating & Calibrating Canberra Segmented Gamma Scanner
88	SQM-010, Revision 7	Review, Validation, and Reporting NDA Data and Results
89	SQM-011, Revision 6	Canberra Industries NDA Implementation Plan for RFETS Transuranic Waste Characterization Program
90	LATA-MGSSID-001, Revision 1	LATA Program Interface Document for the Mobile Gas Generation Sampling system for use at the Rocky Flats Environmental Technology Site (RFETS)
91	MGSSTP-LATA-001, Revision 1	Mobile Gas Generation Testing Sampling System (MGSS) Test Plan
92	MGSSQP-LATA, Revision 1	MGSS Qualification Plan
93	MGSSR-LATA-001, Revision 0	MGSS Qualification Report
94	PRO-440-RS-0149, Revision 2, DC-01	GGTP Drum Selection and Batching
95	PRO-692-MGSS-030-002, Revision 1, DC-01	Non-Heated Gas Test Canister Operations
96	PRO-856-RS-0153, Revision 0	Gas Generation Testing Data Reduction and Reporting
97	PRO-962-MGSS-001, Revision 0, DC-01	Mobile Gas Generation Testing Sampling System (MGSS) Sampling Operations
98	PRO-963-MGSS-002, Revision 0, DC-01	MGSS Data Calculation
99	RS-020-001, Revision 2	Gas Generation Testing Program Quality Assurance Project Plan (GGTP QAPjP)
100	1-A65-ADM-15.01, Revision 5, DC-01	Control of Nonconforming Items
101	PRO-U76-WC-4030, Revision 1, DCF-CHG-03	Control of Waste Nonconformances
102	1-V41-RM-001, Revision 1, DCF-CHG-1	Records Management Guidance for Records Sources
103	MAN-001-SDRM, Revision 3	Site Document Requirements Manual
104	PRO-815-DM-01, Revision 0	Developing, Maintaining and Controlling Documents

## RFETS PROCEDURES AUDITED FOR A-00-12

No.	Procedure Number	Title
105	1-PRO-077-WIPP-005, Revision 1, DCF-CHG-02	Management of Waste Information Prior to Transmittal to the Waste Records Center
106	PRO-767-WIPP-001, Revision 0, DCF-CHG-01	Waste Records Center Processing
107	L-4031-H	Software Quality Assurance Plan for the Radiological Laboratories
108	PRO-548-SSOC-SQA, Revision 1, DC-002	Software Management for SSOC Nondestructive Assay Systems
109	1-MAN-004-CSMM, Revision 0, CHG-02	Computer Software Management Manual
110	DCI SOP NO. MLA 008, Revision 0, DCF 99-CSS- DCF-0012	Metrology Control of Measuring and Test Equipment
111	MAN-092-M&TEM, Revision 1	Measuring and Test Equipment Manual