



**Department of Energy**

Carlsbad Field Office  
P. O. Box 3090  
Carlsbad, New Mexico 88221

OCT 22 2004

ENTERED



Mr. Steve Zappe, WIPP Project Leader  
Hazardous Waste Permits Program  
New Mexico Environment Department  
2905 E. Rodeo Park Drive, Bldg. 1  
Santa Fe, NM 87505

Subject: Transmittal of Approved RFETS WSPF Number RF130.01, TRM  
Miscellaneous Laboratory Debris

Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office (CBFO) has approved the Rocky Flats Environmental Technology Site (RFETS) Waste Stream Profile Form (WSPF) RF 130.01, TRM Miscellaneous Laboratory Debris.

Enclosed is a copy of the approved form as required by Section B-4(b)(1) of the WIPP Hazardous Waste Facility Permit, No. NM4890139088-TSDF.

If you have any questions on this matter, please contact me at (505) 234-7357 or (505) 706-0066.

Sincerely,

Kerry W. Watson  
Office Director  
Office of Characterization and Transportation

Enclosure

cc: w/o enclosure	
J. Kieling, NMED	*ED
C. Walker, TechLaw	*ED
M. Strum, WTS	*ED
R. Chavez, WRES	*ED
L. Greene, WRES	*ED
K. Zbryk, WRES	*ED
W. Ledford, CTAC	*ED
CBFO M&RC	

\*ED denotes Electronic Distribution  
CBFO:NTP:KWW:GS:04-2076:UFC:5822

041021



Waste Stream Profile Number: RF130.01Generator site name: RFETSTechnical contact: Eric D'AmicoGenerator site EPA ID: CO7890010526Phone number: (303) 966-5362Date of audit report approval by NMED: March 9, 2000 as amended February 6, 2001; May 24, 2001; June 5, 2001; April 5, 2002; April 8, 2002; August 20, 2002; August 29, 2002; December 20, 2002; April 8, 2003; September 19, 2003; December 30, 2003; July 14, 2004 and September 14, 2004Title, version number, and date of documents used for WAP certification: Rocky Flats Environmental Technology Site TRU Waste Characterization Program Quality Assurance Project Plan, 95-QAPJP-0050, Version 10, August 2004.Transuranic (TRU) Waste Management Manual, 1-MAN-008-WM-001, Version 7, February 2004.Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant, Revision 1, March 2004.Did your facility generate this waste?  Yes  No If no, provide the name and EPA ID of the original generator:**Waste Stream Information<sup>(1)</sup>**WIPP ID: RF130.01<sup>(2)</sup>Summary Category Group: S5000<sup>(2)</sup> Waste Matrix Code Group: Heterogeneous Debris Waste<sup>(2)</sup>Waste Stream Name: TRM Miscellaneous Laboratory Debris (D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, U108)<sup>(2)</sup>Description from the WTWBIR: This waste stream includes heterogeneous debris waste contaminated with miscellaneous organic solids generated primarily from laboratory operations.<sup>(2)</sup>Defense TRU Waste:  Yes  NoCheck one:  CH  RH Number of SWBs N/A Number of Drums 136 Number of Canisters N/ABatch Data Report numbers supporting this waste stream characterization: See Table 7.List applicable EPA Hazardous Waste Codes<sup>(3)</sup>: D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, U108Applicable TRUCON Content Codes: RF 121A/221A, RF 121D/221D, RF 121DF/221DF, RF 121DA/221DA, RF 121DAF/221DAF, RF 121E/221E, RF 121F/221F, RF 121H/221H, RF 121I/221I, RF 121K/221K, RF 121N/221N, RF 121T/221T**Acceptable Knowledge Information<sup>(1)</sup>****Required Program Information**

- Map of site: Reference List, No. 3
- Facility mission description: Reference List, No. 3
- Description of operations that generate waste: Reference List, Nos. 1, 2, 3, 6
- Waste identification/categorization schemes: Reference List, Nos. 8, 9
- Types and quantities of waste generated: Reference List, Nos. 1, 2, 3, 6
- Correlation of waste streams generated from the same building and process, as appropriate: Reference List, Nos. 1, 2, 6
- Waste certification procedures: Reference List, No. 5

**Required Waste Stream Information**

- Area(s) and building(s) from which the waste stream was generated: Reference List, Nos. 1, 2, 6
- Waste stream volume and time period of generation: Reference List, Nos. 4, 6
- Waste generating process description for each building: Reference List, Nos. 1, 2, 6
- Process flow diagrams: Reference List, Nos. 1, 2
- Material inputs or other information identifying chemical/radionuclide content and physical waste form: Reference List, Nos. 1, 2, 3, 6
- Which Defense Activity generated the waste: (Check one) Reference List, No. 3
  - Weapons activities including defense inertial confinement fusion
  - Naval Reactors development
  - Verification and control technology
  - Defense research and development
  - Defense nuclear waste and material by products management
  - Defense nuclear materials production
  - Defense nuclear waste and materials security and safeguards and security investigations

Supplemental Documentation:

- Process design documents: Note 4
- Standard operating procedures: Note 4
- Safety Analysis Reports: Note 4
- Waste packaging logs: Note 4
- Test plans/research project reports: Note 4
- Site data bases: Note 4
- Information from site personnel: Note 4
- Standard industry documents: Note 4
- Previous analytical data: Note 4
- Material safety data sheets: Note 4
- Sampling and analysis data from comparable/surrogate Waste: Note 4
- Laboratory notebooks: Note 4

Sampling and Analysis Information<sup>(1)</sup>

[For the following, when applicable, enter procedure title(s), number(s) and date(s)]

- Radiography: Reference List Nos. 13, 14, 19
- Visual Examination: 11, 12, 16, 17, 18, 20
- Headspace Gas Analysis
  - VOCs: Reference List, No. 7, 15, 21
  - Flammable: Reference List, No. 7, 15, 21
  - Other gases (specify): N/A
- Homogeneous Solids/Soils/Gravel Sample Analysis (Tables 1, 3, 4, and 5 are not applicable and not included)
  - Total metals: N/A
  - PCBs: N/A
  - VOCs: N/A
  - Nonhalogenated VOCs: N/A
  - Semi-VOCs: N/A
  - Other (specify): N/A

Waste Stream Profile Form certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

[Signature]  
Signature of Site Project Manager

G. A. O'Leary, Manager TRU Programs  
Printed Name and Title

10/14/04  
Date

[Signature]  
Signature of Site QA Officer

C. L. Ferrera, TWCP Site QAO  
Printed Name and Title

10/14/04  
Date

- NOTE**
- (1) Use back of sheet or continuation sheets, if required.
  - (2) Item Description Code (IDC) 523 is a newly generated IDC for miscellaneous organic solids that did not fit into an existing IDC and thus is not identified in the Waste Isolation Pilot Plant (WIPP) Transuranic Waste Baseline Inventory Report (WTWBIR). Therefore, the WIPP ID corresponds to the Waste Stream Profile Number. The Waste Stream Name, Description, Summary Category Group, Waste Matrix Code Group, and Waste Matrix Code are based on the acceptable knowledge for this waste stream (Reference No. 6).
  - (3) EPA Hazardous Waste Codes were determined using acceptable knowledge and confirmed using headspace gas sampling and analysis (see attached Characterization Information Summary documenting this determination).
  - (4) See the References section in the Acceptable Knowledge Summary (attached) for additional backup documentation associated with this waste stream.

## REFERENCE LIST

1. Backlog Waste Reassessment Baseline Book, Waste Form 46, Particulate Sludge, September 2004.
2. Waste Stream and Residue Identification and Characterization (WSRIC), Version 7, July 2004, and archived versions.
3. RFETS TRU Waste Acceptable Knowledge Supplemental Information, RF/RMRS-97-018, Revision 13, April 2004.
4. Waste and Environmental Management System (WEMS) database.
5. Transuranic (TRU) Waste Certification, PRO-X05-WC-4018, Version 7, March 2004.
6. Acceptable Knowledge TRU/TRM Waste Stream Summaries, RMRS-WIPP-98-100, Section 7.32, Revision 0, September 2004.
7. GC/MS Determination of Volatile Organics Waste Characterization, L-4111-X, January 2002.
8. Waste Characterization, Generation, and Packaging, 1-PRO-079-WGI-001, Revision 4, May 2002.
9. Waste Characterization Program Manual, 1-MAN-036-EWQA-Section 1.6.1, Revision 3, May 2002.
10. Interoffice Memorandum from Thomas R. Gatliffe to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile RF130.01 Lot 1, TRG-294-04, September 2004.
11. Visual Examination for Confirmation of RTR, 4-H80-776-ASRF-007, Revision 5, June 2001.
12. TRU/TRM Waste Visual Verification ( $V^2$ ) and Data Review, PRO-1031-WIPP-1112, Version 3, March 2004.
13. Real-Time Radiography Testing of Transuranic and Low-Level Waste, 4-W30-NDT-00664, Version 10, March 2004.
14. Real-Time Radiography Testing of Transuranic and Low-Level Waste in Building 569, 4-I19-NDT-00569, Revision 6, January 2002.
15. Headspace Gas Sampling And Analysis Using An Automated Manifold, L-4231-F, March 2002.
16. Visual Examination for Confirmation of RTR, PRO-1471-VE-771, Revision 0, November 2001.
17. Glovebox and C-Cell Waste Operations, PRO-1358-440-VERP, Version 6, March 2004.
18. RTR Visual Examination Confirmation, Building 371, PRO-1608-VECRTR-371, Revision 0, October 2002.
19. Mobile Real-Time Radiography Testing of Transuranic and Low-Level Waste, PRO-1520-Mobile-RTR, Version 3, March 2004.
20. Residue Repack, Building 371; PRO-544-SALT REPACK-371, Revision 5, January 2002.
21. Headspace Gas Sampling and Analysis Using An On-Line Integrated System, PRO-1676-HGAS-S&A, Version 2, January 2004.

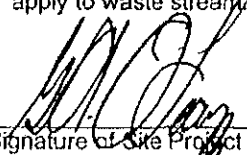
**Form A**  
**Reconciliation with Data Quality Objectives**

I certify by signature (below) that sufficient data have been collected to determine the following Program-required waste parameters:

WSPF # RF130.01

Item	Check Box <sup>a</sup>	Reconciliation Parameter
1	✓	Waste Matrix Code as reported in WEMS.
2	✓	Waste Material Parameter Weights for individual containers as reported in WEMS.
3	✓	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	✓	Container mass and activities of each radionuclide of concern as reported in WEMS.
5	✓	Each waste container of waste contains TRU radioactive waste.
6	✓	Mean concentrations, UCL <sub>90</sub> for the mean concentrations, standard deviations, and the number of samples collected for each VOC in the headspace gas of waste containers in the waste stream/waste stream lot.
7	N/A	Mean concentrations, UCL <sub>90</sub> for the mean concentrations, standard deviations, and number of samples collected for VOCs in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
8	N/A	Mean concentrations, UCL <sub>90</sub> for the mean concentrations, standard deviations, number of samples collected for SVOCs in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
9	N/A	Mean concentrations, UCL <sub>90</sub> for the mean concentrations, standard deviations, and number of samples collected for metals in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
10	N/A	Sufficient number of samples was taken to meet statistical sampling requirements.
11	✓	Only validated data were used in the above calculations, as documented through the site data review and validation forms and process.
12	✓	Waste containers were selected randomly for sampling, as documented in site procedures.
13	✓	The potential flammability of TRU waste headspace gases.
14	✓	Sufficient number of waste containers was visually examined to determine with a reasonable level of certainty that the UCL <sub>90</sub> for the misclassification rate is less than 14 percent.
15	✓	Whether the waste stream exhibits a toxicity characteristic (TC) under 40 CFR Part 261, Subpart C.
16	✓	All TICs were appropriately identified and reported in accordance with the requirements of the WIPP WAP prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
17	✓	The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WIPP WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
18	✓	The RTLs (i.e., PRQLs) for all analyses were met prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
19	✓	Appropriate packaging configuration and DAC were met and documented in the headspace gas sampling documentation and the drum age was met prior to sampling.
20	✓	Whether the waste stream can be classified as hazardous or non-hazardous at the 90-percent confidence limit.

<sup>a</sup> Check (✓) indicates that data or acceptable knowledge are sufficient to determine the waste parameters and that the waste parameters have been reported in the listed document or database. N/A indicates parameter does not apply to waste stream. NO indicates data are insufficient.

  
Signature of Site Project Manager

G. A. O'Leary  
Printed Name

10-14-04  
Date

## Data Summary Report—Table 2: Headspace Gas Summary Data

WSPF # RF130.01

Sampling and Analysis Method (check one):

 100% Sampling Reduced Sampling

2A

ANALYTE <sup>a</sup>	# Samples <sup>b</sup>	Transform Applied <sup>c</sup>	Normality Test (Pass/Fail) <sup>d</sup>	Max. Value (ppmV)	Mean <sup>d</sup>	Std. Dev. <sup>d</sup>	UCL <sub>90</sub> <sup>d</sup>	Transformed RTL <sup>e</sup>	Un-Transformed RTL <sup>e</sup> (ppmV)	EPA Code <sup>f</sup>
1,1-Dichloroethane	0			2.6	1.271				10	
1,2-Dichloroethane	0			2.7	1.248				10	
1,1-Dichloroethylene	0			3.2	1.31				10	
cis-1,2-Dichloroethylene	0			3.2	1.433				10	
trans-1,2-Dichloroethylene	0			3.4	1.213				10	
1,1,2,2-Tetrachloroethane	0			3.4	1.265				10	
1,1,1-Trichloroethane	1	Log	Fail <sup>h</sup>	3.4	0.351	0.206	0.404	2.303	10	
1,1,2-Trichloro-1,2,2-Trifluoroethane	0			2.6	1.087				10	
1,2,4-Trimethylbenzene	1	Log	Fail <sup>h</sup>	10	0.265	0.417	0.373	NA	NA	
1,3,5-Trimethylbenzene	0			3.3	1.181				NA	
Acetone	1	Log	Fail <sup>h</sup>	43	2.665	0.313	2.746	4.605	100	
Benzene	0			2.7	1.171				10	
Bromoform	0			3.0	1.16				10	
Butanol	0			33	12.404				100	
Carbon disulfide	0			3.6	1.477				10	
Carbon tetrachloride	1	Log	Fail <sup>h</sup>	9.6	0.411	0.404	0.515	2.303	10	
Chlorobenzene	0			2.8	0.99				10	
Chloroform	0			2.5	1.185				10	
Cyclohexane	2	Log	Fail <sup>h</sup>	17	0.516	0.63	0.678	NA	NA	
Ethyl benzene	0			2.7	1.019				10	
Ethyl ether	0			3.5	1.444				10	
Methanol	1	Log	Fail <sup>h</sup>	200	2.541	0.61	2.699	4.605	100	
Methyl ethyl ketone	0			34	14.442				100	
Methyl isobutyl ketone	0			29	11.154				100	
Methylene chloride	4	Log	Fail <sup>h</sup>	530	0.732	1.284	1.064	2.303	10	
o-Xylene	0			2.6	1.135				10	
m,p-Xylene	0			4.9	2.067				10	
Tetrachloroethylene	0			3.1	1.267				10	
Toluene	14	Log	Fail <sup>h</sup>	18	1.089	0.866	1.313	4.2769	72.02 <sup>g</sup>	
Trichloroethylene	0			3.0	1.085				10	

## NOTES:

<sup>a</sup> A total of 26 samples were collected and analyzed. Analysis was performed for all analytes identified. Samples were not composited.

<sup>b</sup> Identifies the number of samples in which the associated analyte was detected.

<sup>c</sup> Identifies the type of data transformation used, if applicable, to achieve (or better achieve) a normal probability distribution of the data.

## Data Summary Report—Table 2: Headspace Gas Summary Data (continued)

## NOTES: (continued)

- <sup>d</sup> Statistics calculated based on using  $\frac{1}{2}$  the MDL for less-than-detectable observations with data transformation as identified (Reference 10). When transformation was applied, the Mean and  $UCL_{90}$  values presented are the transformed values (Reference 10). With no detectable concentrations, listed mean reflects average of one-half of reported MDL values for analyte and calculation of standard deviation and  $UCL_{90}$  values is not meaningful. With fewer than five detectable concentrations, calculated values for  $UCL_{90}$  are subject to potentially large relative error.
- <sup>e</sup> RTLs for headspace gas analysis results correspond to the analyte PRQL for analytes that are hazardous waste constituents. "NA" means the analyte is not a WIPP WAP target analyte, but instead a flammable VOC that is analyzed for compliance with the TRUPACT-II Authorized Methods for Payload Control (TRAMPAC).
- <sup>f</sup> No entry indicates that the applicable  $UCL_{90}$  value did not exceed the associated RTL.
- <sup>g</sup> Limit used for evaluation of EPA Hazardous Waste Code for toluene (Reference No. 3).
- <sup>h</sup> Data set (with or without transformation) did not pass the test for normality. The data set that most approximated a normal distribution was used for computation of statistics.

Data Summary Report—Table 2: Headspace Gas Summary Data (continued)

WSPF # RF130.01

2B

TENTATIVELY IDENTIFIED COMPOUND	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC
1-Propanol (CAS No. 71-23-8)	93	1

No TIC listed in 40 CFR 261, Appendix VIII was detected in greater than or equal to 25 percent of the waste containers sampled.

Did the data verify the acceptable knowledge?  Yes  No

Data as reported in Data Summary Report – Table 2 confirm acceptable knowledge in that no additional toxicity characteristic volatile organic or F-listed solvent EPA codes, other than those assigned by acceptable knowledge, are applicable.

If not, describe the basis for assigning the EPA Hazardous Waste Codes:



**Data Summary Report—Table 6: Exclusion of  
Prohibited Items**

**WSPF # RF130.01**

The absence of prohibited items is documented through acceptable knowledge. Radiography or visual examination is performed on each container in this waste stream to verify the absence of the following prohibited items:

- Liquids
- Non-radionuclide pyrophoric materials
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes
- Explosives or compressed gases
- Waste exhibiting the characteristics of ignitability, corrosivity or reactivity
- Non-mixed hazardous wastes

Newly generated waste is characterized by visual verification (VV) at the time of waste packaging using the visual examination (VE) technique unless the use of radiography in lieu of, or in combination with, visual verification is justified by any of the following criteria:

- Visual verification was conducted during packaging, but was unacceptable,
- Visual verification requires extensive handling of high gram content waste that results in high radioactive exposure for the VV personnel,
- Situations where waste packaging is conducted at numerous locations generating small quantities of transuranic waste requiring a large number of VV personnel, and/or
- Where waste was originally packaged as low-level waste, but subsequently determined to be transuranic.

Each container of waste is certified and shipped only after radiography and/or VE either:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by radiography or VE are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

**Data Summary Report—Table 7: Correlation  
of Container Identification to Batch Data Reports**

WSPF # RF130.01

Package No.	Radioassay Data Package	Headspace Sample Batch No.	Headspace VOC Data Package	RTR Data Package <sup>a</sup>	VE or VV Data Package <sup>b</sup>
D91218	CIQ-01-001	04W0202	HGAS-DP-00918	6T-1702	
D92779	569IP1-DP-072502	04W0252	HGAS-DP-00968	6T-2112	
DA4744	569IP1-DP-062402	04W0193	HGAS-DP-00909	6T-2105	
DA4758	569IP1-DP-010202	04W0239	HGAS-DP-00955	5T-0278	
DA4767	569IP1-DP-052302	04W0259	HGAS-DP-00975	5T-0302	
DB7427	569IP1-DP-102302	04W0245	HGAS-DP-00961A		VV-559-00007
DD1140	569IP1-DP-100702	04W0170	HGAS-DP-00886		VV-559-00008
DD1145	569IP1-DP-092502	04W0201	HGAS-DP-00917		VV-559-00003
DD1146	569IP1-DP-100702	04W0210	HGAS-DP-00926		VV-559-00005
DD4869	569IP1-DP-102302	04W0170	HGAS-DP-00886		VV-559-00006
DD4871	569IP1-DP-102302	04W0213	HGAS-DP-00929		VV-559-00006
DD4872	569IP1-DP-102302	04W0209	HGAS-DP-00925		VV-559-00006
DD4873	569IP1-DP-102302	04W0251	HGAS-DP-00967		VV-559-00006
DD4875	569IP1-DP-102302	04W0251	HGAS-DP-00967		VV-559-00006
DD4906	569IP1-DP-100702	04W0326	HGAS-DP-01041		VV-559-00004
DD5566	569IP1-DP-110502	04W0180	HGAS-DP-00896		VV-559-00009
DD5569	569IP1-DP-102302	04W0163	HGAS-DP-00879		VV-559-00007
DD5571	569IP1-DP-110502	04W0282	HGAS-DP-00998		VV-559-00009
DD5958	569IP1-DP-111202	04W0172	HGAS-DP-00888		VV-559-00009
DD5960	569IP1-DP-121702	04W0251	HGAS-DP-00967		VV-559-00010
DD5961	569IP1-DP-111202	04W0238	HGAS-DP-00954		VV-559-00009
DD6332	569IP1-DP-012803	04W0212	HGAS-DP-00928		VV-559-00012
DD7105	440IP1-DP-042303	04W0239	HGAS-DP-00955		VV-559-00012
DD7107	569IP1-DP-022703	04W0165	HGAS-DP-00881		VV-559-00015
DE2180	440IP1-DP-020504	04W0360	HGAS-DP-01073		VV-559-00021
DE2181	440IP1-DP-020504	04W0349	HGAS-DP-01064		VV-559-00021

**NOTES:**

<sup>a</sup> No entry indicates visual verification (VV) at the time of waste packaging using the visual examination (VE) technique was performed for the container.

<sup>b</sup> No entry indicates container was not selected for visual examination to confirm RTR or did not undergo VV at the time of waste packaging using the VE technique.

Acceptable Knowledge Summary

WSPF # RF130.01

RMRS-WIPP-98-100, Acceptable Knowledge TRU/TRM Waste Stream Summaries, Section 7.32: TRM  
Miscellaneous Laboratory Debris (attached).



**Rocky Flats Environmental Technology Site**

**ACCEPTABLE KNOWLEDGE INFORMATION**

**ACCEPTABLE KNOWLEDGE TRU/TRM  
WASTE STREAM SUMMARIES**

**RMRS-WIPP-98-100**

**Section 7.32**

**TRM Miscellaneous Laboratory Debris  
(D004, D005, D008, D009, D010, D022, D027, D028, D029,  
D032, D033, D034, D043, F001, F002, F005, F006, F007,  
F009, P030, P098, P099, P106, U003, U103, U108)**

**Profile No. RF130.01**

**Revision 0**

Reviewed for Classification/UCNI

By: Unclassified Not UCNI

Reference Exemption Number CEX-032-00

Date: September 29, 2004

Approval signatures in Site Document Control history file

7.32 TRM Miscellaneous Laboratory Debris (D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, U108) Profile No. RF130.01

### Acceptable Knowledge (AK) Waste Stream Summary

Waste Stream Name: TRM Miscellaneous Laboratory Debris (D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, U108)

Generation Buildings: Buildings 126, 371, 440, 559, 707, 779<sup>(1,6)</sup>  
NOTE: Waste may be repackaged in Building 440 in the future.

Waste Stream Volume (Retrievably Stored): 40 55-gallon drums<sup>(1,6)</sup>

Generation Dates (Retrievably Stored): July 1998 – April 2000<sup>(1,6)</sup>

Waste Stream Volume (Newly Generated): 92 55-gallon drums<sup>(1,6)</sup>

Generation Dates (Newly Generated): August 2002 – April 2005<sup>(1,6)</sup>  
NOTE: Waste may be repackaged in Building 440 in the future.

Waste Stream Volume (Projected): 4 55-gallon drums<sup>(1)</sup>

Generation Dates (Projected): September 2004 – November 2004

TRUCON Content Code<sup>(2)</sup>: RF121A/221A, RF121D/221D, RF121DA/221DA, RF121DAF/221DAF, RF121DF/221DF, RF121E/221E, RF121F/221F, RF121H/221H, RF121I/221I, RF121K/221K, RF121N/221N, RF121T/221T

Process Knowledge Demonstrates Flammable VOCs in Headspace < 500 ppm: No (see Section 7.32.6)

#### 7.32.1 Transuranic Waste Baseline Inventory Report Information<sup>(3)</sup>

WIPP Identification Number(s): RF130.01

Summary Category Group: S5000 Waste Matrix Code Group: Heterogeneous Debris Waste

Waste Matrix Code: S5490 Waste Stream Name: TRM Miscellaneous Laboratory Debris

Description from the WTWBIR: This waste stream includes heterogeneous debris waste contaminated with miscellaneous organic solids generated primarily from laboratory operations.

NOTE: Item Description Code (IDC) 523 is a newly generated IDC for miscellaneous organic solids that did not fit into an existing IDC and thus is not identified in the Waste Isolation Pilot Plant (WIPP) Transuranic Waste Baseline Inventory Report (WTWBIR). Therefore, the WIPP ID corresponds to the Waste Stream Profile Number. The Waste Stream Name, Description, Summary Category Group, Waste Matrix Code Group, and Waste Matrix Code are based on the AK for this waste stream (see Section 7.32.2).

7.32.2 Waste Stream Description

Transuranic Mixed (TRM) Miscellaneous Laboratory Debris assigned Environmental Protection Agency (EPA) Hazardous Waste Numbers D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, and U108 consists of Miscellaneous Organic Solids IDC 523. This material was generated primarily from laboratory operations; is similar in material, physical form, and hazardous constituents; and is therefore considered a single waste stream. Table 7.32-1 presents the waste matrix code and waste material parameters for the TRM Miscellaneous Laboratory Debris waste stream. <sup>(4)</sup>

**Table 7.32-1, TRM Miscellaneous Laboratory Debris**

IDC	IDC Description	Waste Matrix Code	Waste Material Parameters	Weight % (Average)
523	Miscellaneous Organic Solids	S5490, Unknown/Other Heterogeneous Debris	Note 1	

Note 1: Waste material parameters and weights vary significantly from container to container and will be determined during visual verification at the time of packaging or by radiography, as appropriate.

**IDC 523, Miscellaneous Organic Solids:** This material includes lab ware and equipment (e.g., sample vials, foil pans, glassware, thimbles, ceramic bowls, or hot plates) contaminated with miscellaneous organic solids (e.g. sample material) generated during laboratory operations. This material also includes sealed sources used to support operations. <sup>(5,7,10)</sup>

7.32.3 Areas of Operation

TRM Miscellaneous Laboratory Debris assigned EPA Hazardous Waste Numbers D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, and U108 was generated by the following defense operations in Buildings 126, 371, 440, 559, 707, and 779. <sup>(5,6,7,10)</sup>

- Laboratory Operations
- Waste Repackaging

7.32.4 Generation Processes

TRM Miscellaneous Laboratory Debris assigned EPA Hazardous Waste Numbers D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, and U108 was generated primarily from laboratory operations in Building 559. This TRM Miscellaneous Laboratory Debris includes analytical waste (e.g. sample vials, foil pans, glassware, or other laboratory supplies/equipment contaminated with sample material) generated during laboratory operations in support of weapons fabrication and manufacturing, plutonium recovery, and residue treatment and repackaging activities. Building 559 laboratory performed analyses of samples of wastes and products from all

areas at the Rocky Flats Environmental Technology Site (RFETS). Specific analytical techniques included Inductively Coupled Plasma (ICP) mass spectroscopy, Gas Chromatograph Mass Spectrometer (GC/MS), sulfide and cyanide analyses, gas chromatography, Toxicity Characteristic Leaching Procedure (TCLP), thermal analysis, infrared analysis, emissions spectroscopy, ICP spectroscopy, mercury analysis, isotopic analysis, gamma ray spectroscopy, reactivity tests on pyro-chemical salts, chromium determination asbestos analysis, atomic absorption, and Raschig ring analyses. Some of the waste includes excess sealed sources used to support these operations prior to being stored and packaged as waste in Building 126. Process descriptions can be found in the Waste Stream and Residue Identification and Characterization (WSRIC) Building Book. <sup>(4,5,7,10)</sup>

Waste generation activities also include repackaging operations in Buildings 371, 707, and 779. Process descriptions can be found in the Waste Stream and Residue Identification and Characterization (WSRIC) Building Book. <sup>(8,11,12)</sup>

Waste containers of TRM Miscellaneous Laboratory Debris may also be repackaged in the future in Building 440, as necessary, to correct original packaging configuration deficiencies to meet WIPP WAC requirements. <sup>(9)</sup>

#### 7.32.5 Resource Conservation and Recovery Act (RCRA) Characterization

This waste stream is characterized as a mixed waste. As described in Section 7.32.2, this waste is generated from similar activities; is similar in material, physical form and hazardous constituents; and is therefore considered a single waste stream. The waste stream as a whole is assigned EPA hazardous waste numbers D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, and U108. For on-site storage, the individual containers of mixed waste in this stream are assigned a subset of these EPA hazardous waste numbers, because the Backlog Waste Reassessment (BWR) Baseline Book Subpopulations and WSRIC Process Numbers used by the site do not define the waste stream in accordance with the WAP. The specific BWR Baseline Book Subpopulations and WSRIC Process Numbers associated with TRM Miscellaneous Laboratory Debris are listed in the Waste and Environmental Management System (WEMS) AK Waste Stream Summary for Profile Number RF130.01. <sup>(4)</sup>

Visual examination of waste contents at the time of packaging and/or Real-Time Radiography (RTR) is used to verify that the waste stream is not a liquid waste and does not contain explosives, nonradionuclide pyrophoric materials, compressed gases, or reactive waste. Although materials in this waste stream are contaminated with material derived from the sampling and analysis of treated electroplating wastes containing cyanide and sulfide, the waste is not cyanide- or sulfide-reactive since the cyanide or sulfide concentrations are below land disposal treatment regulatory standards as described in Reference 14. Therefore, this waste stream does not exhibit the characteristics of ignitability (D001), corrosivity (D002), or reactivity (D003). <sup>(7,10,14,15)</sup>

Beryllium parts were used in the manufacture/assembly of weapons components, and residual beryllium contamination of plutonium parts may have occurred; therefore, the waste may have been contaminated with beryllium, and residual quantities of beryllium may be present in the waste stream. Any beryllium present (less than 1 percent by weight) is a contaminant of the process, is not an unused commercial chemical product, and therefore is not a P015-listed waste. <sup>(5,7,10)</sup>

No hazardous waste from specific sources (40 CFR 261.32) was generated at the site. Therefore no K listings have been applied to this waste stream. <sup>(5,7,10)</sup>

The TRM Miscellaneous Laboratory Debris is characterized as hazardous waste based on AK that this debris may be contaminated with laboratory waste generated during analysis of samples collected from waste streams generated anywhere on site. Therefore, this waste may be contaminated with F-listed spent solvents and electroplating wastes, as well as P-listed and U-listed constituents (e.g., wastes treated in Building 374). EPA Hazardous Waste Numbers F001, F002, and F005 are assigned, because samples of waste that were contaminated with regulated spent solvents including carbon tetrachloride, Freon TF (1,1,2-trichloro-1,2,2-trifluoroethane), methyl ethyl ketone, methylene chloride, and 1,1,1-trichloroethane were collected. EPA Hazardous Waste Numbers F006, F007, and F009 are assigned, because samples were collected of treated aqueous wastes from electroplating operations (e.g., spent cyanide bath and rinse solutions that contained cadmium, chromium, nickel, and silver). EPA Hazardous Waste Numbers P030, P098, P099, P106, U003, U103, and U108 are assigned because the samples of aqueous waste from the Building 374 treatment facility were analyzed in the Building 559 laboratory. This aqueous waste may be contaminated with soluble cyanide salts, including potassium cyanide, potassium silver cyanide, and sodium cyanide as well as acetonitrile, dimethyl sulfate, and 1,4-dioxane. These waste chemicals were treated in Building 881 and the treatment effluent was subsequently transferred to the radioactive aqueous waste treatment facility in Building 374. EPA hazardous waste Number U003 is assigned to this waste stream due to the mixture rule and not due to ignitability. <sup>(5,10)</sup>

Based on the process knowledge that ash waste was sampled in Building 559, this waste may also exhibit the characteristic of toxicity for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. In addition, based on historical analytical data from samples collected by the Residue Characterization Program and analyzed in Building 559, the sampled waste may exhibit the characteristic of toxicity for chloroform, 1,4-dichlorobenzene, 1,2-dichloroethane, 1,1-dichloroethylene, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, and vinyl chloride. In accordance with 40 Code of Federal Regulations (CFR) 268.9, Rocky Flats Environmental Technology Site (RFETS) adopted the policy not to assign characteristic EPA Hazardous Waste Numbers to a listed waste where the treatment standards for the listed waste address the characteristic. Consequently, because the treatment standards for F001, F002, F005, F006, F007, and F009 address the treatment standards for cadmium, chromium, silver, benzene, carbon tetrachloride, methyl ethyl ketone, and trichloroethylene, the EPA Hazardous Waste Numbers D006, D007, D011, D018, D019, D035, and D040 are not assigned to this waste. EPA Waste Code D008 was



retained because the TRM Miscellaneous Debris includes lead items whose treatment standard is not addressed by the listed waste. Therefore, EPA Hazardous Waste Numbers D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, and U108 are assigned to the waste stream based on AK. <sup>(5,10)</sup>

Headspace gas sampling and analysis of containers assigned to this waste stream by AK detected eight VOCs (acetone, carbon tetrachloride, cyclohexane, methanol, methylene chloride, toluene, 1,1,1-trichloroethane, and 1,2,4-trimethylbenzene). Statistics were calculated based on using one-half the Method Detection Limit (MDL) for less-than-detectable observations with data transformation applied where appropriate. Using this "WIPP directed" method, the calculated 90 percent UCL<sub>90</sub> of the mean concentrations for none of the analytes was found to exceed the associated Regulatory Threshold Limit (RTL) values. Therefore, the headspace data confirms the AK characterization that no additional characteristic volatile organic or F-listed solvent EPA codes are applicable. <sup>(13)</sup>

#### 7.32.6 Transportation

The payload containers in the waste stream must also comply with the TRUPACT-II Authorized Methods for Payload Control (TRAMPAC) requirements. Flammable volatile organic compounds (VOCs) including acetone, cyclohexane, methanol, toluene, and 1,2,4-trimethylbenzene were identified in this waste stream based on headspace gas sampling and analysis. Therefore, flammable VOCs in the payload container headspace have the potential to exceed 500 ppm. All payload containers, including those that exceed 500 ppm flammable VOCs in the headspace gas, are evaluated for compliance with applicable TRAMPAC requirements using the eTRAMPAC system prior to shipment. Any containers not passing the eTRAMPAC compliance evaluation are identified and corrected through the site nonconformance reporting system. <sup>(13)</sup>

Although six or more individual payload containers may contain greater than one weight percent depleted uranium, the waste stream as a whole does not. <sup>(6,16)</sup>

#### 7.32.7 Radionuclides

Table 7.32-2 summarizes the radionuclides that may be present in TRM Miscellaneous Laboratory Debris assigned EPA Hazardous Waste Numbers D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, and U108. <sup>(4)</sup>

Table 7.32-2, TRM Miscellaneous Laboratory Debris Radionuclides

IDC	Description	Radionuclides
523	Miscellaneous Organic Solids	WG Pu, Am-241, Am-243, DU, EU, Np-237, (Ba-133, C-14, Cd-109, Cf-252, Cm-244, Co-57, Co-60, Cs-137, H-3, Hg-203, I-131, Kr-85, Ni-63, Pm-147, Ra-226, Sn-113, Th-228, Th-230, Y-88) (Note 1)

NOTE 1: IDC 523 may contain sealed sources.

Key:

WG Pu	weapons-grade plutonium	Cs-137	cesium-137
Am-241	americium-241	H-3	hydrogen-3
Am-243	americium-243	Hg-203	mercury-203
DU	depleted uranium	I-131	iodine-131
EU	enriched uranium	Kr-85	krypton-85
Np-237	neptunium-237	Ni-63	nickel-63
Ba-133	barium-133	Pm-147	promethium-147
C-14	carbon-14	Ra-226	radon-226
Cd-109	cadmium-109	Sn-113	tin-113
Cf-252	californium	Th-228	thorium-228
Cm-244	curium-244	Th-230	thorium-230
Co-57	cobalt-57	Y-88	yttrium-88
Co-60	cobalt-60		

7.32.8 References

1. Wastren 2004. Interoffice Memorandum from M. L. Johnson to Waste Records Center. Current and Projected Waste Volumes for TRM Miscellaneous Laboratory Debris (D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, U108), Profile Number RF130.01, MLJ-070-2004, September 20, 2004.
2. RFETS 2004. Transuranic (TRU) Waste Management Manual, Version 7, 1-MAN-008-WM-001.
3. DOE 1995. Transuranic Waste Baseline Inventory Report, Revision 0. DOE/CAO-95-1121.
4. RMRS 2004. RFETS TRU Waste Acceptable Knowledge Supplemental Information. RF/RMRS-97-018, Revision 13.
5. RFETS 2004. Backlog Waste Reassessment Baseline Book, Waste Form 46, Particulate Sludge.
6. Waste and Environmental Management System (WEMS) database.
7. RFETS 2004. Waste Stream and Residue Identification and Characterization Building 126, Version 7.0.
8. RFETS 2004. Waste Stream and Residue Identification and Characterization Building 371, Version 7.0.
9. RFETS 2004. Waste Stream and Residue Identification and Characterization Building 440 Storage, Version 7.0.

10. RFETS 2004. Waste Stream and Residue Identification and Characterization Building 559, Version 7.0.
11. RFETS 2001. Waste Stream and Residue Identification and Characterization Building 707, Version 6.0.
12. RFETS 1999. Waste Stream and Residue Identification and Characterization Building 779, Version 6.0.
13. Interoffice Memorandum from Thomas R. Gatliffe to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile RF130.01 (TRM Miscellaneous Laboratory Debris) Lot 1, TRG-294-04, September 16, 2004.
14. Department of Energy, Carlsbad Field Office letter from Dr. Inés Triay and S. D. Warren to Mr. Steve Zappe; Request for Permit Modification to the Hazardous Waste Facility Permit, Permit Number NM4890139088-TSDF, Waste Characterization Updates and Other Process Improvements; Item 5: Add New Hazardous Waste Numbers, May 13, 2003.
15. State of New Mexico Environment Department letter from Ron Curry to Dr. Ines Triay and Dr. Steven Warren; Final Determination, Class 2 Modification Requests WIPP Hazardous Waste Facility Permit EPA I.D. NM4890139088; approving Item 5 to add hazardous waste numbers, September 11, 2003.
16. Wastren 2004. Interoffice Memorandum from M. L. Johnson to Waste Records Center. Depleted Uranium Concentrations in Assayed Containers of TRM Miscellaneous Laboratory Debris (D004, D005, D008, D009, D010, D022, D027, D028, D029, D032, D033, D034, D043, F001, F002, F005, F006, F007, F009, P030, P098, P099, P106, U003, U103, U108), Profile Number RF130.01, MLJ-072-2004, September 28, 2004.