



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

OCT 08 2003

RF 101.29



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

Subject: Transmittal of Approved Rocky Flats Environmental Technology Site, Waste Stream Profile Form Number RF101.29, Rev. 0 – Combustible Waste

Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office (CBFO) has approved the Rocky Flats Environmental Technology Site (RFETS), Waste Stream Profile Form RF101.29, Revision 0. 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
CBFO Assistant Manager
Office of National TRU Program

Enclosure

cc: w/o enclosure
J. Kieling, NMED
C. Walker, TechLaw
J. Bennett, WTS
K. Dunbar, WRES
L. Greene, WRES
C. Riggs, CTAC
CBFO M&RC



WIPP WASTE STREAM PROFILE FORM

RF101.29, Revision 0

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Waste Stream Profile Number: RF101.29

Generator site name: RFETS

Technical contact: Eric D'Amico

Generator site EPA ID: CO7890010526

Phone number: (303) 966-5362

Date of audit report approval by NMED: March 9, 2000 as amended February 7, 2001; June 5, 2001; April 8, 2002; August 20, 2002; August 29, 2002; and April 8, 2003

Title, 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, Revision 6, March 2002.

Transuranic (TRU) Waste Management Manual, Revision 5, 1-MAN-008-WM-001, May 2002. Contact-Handled

Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant, Revision 0.1, July 2002.

Did your facility generate this waste? Yes No If no, provide the name and EPA ID of the original generator:

Waste Stream Information⁽¹⁾

WIPP ID: RF101.29⁽³⁾

Summary Category Group: S5000⁽³⁾ Waste Matrix Code Group: Combustible Waste⁽³⁾

Waste Stream Name: TRM Combustible and Plastic Wastes (F001)⁽³⁾

Description from the WTWBIR: Cloth, paper, cellulosic, and plastic debris material generated from plutonium operations/activities with assigned EPA Hazardous Waste Number F001.⁽³⁾

Defense TRU Waste: Yes No

Check one: CH RH Number of SWBs N/A Number of Drums 123 Number of Canisters N/A

Batch Data Report numbers supporting this waste stream characterization: See Table 7.

List applicable EPA Hazardous Waste Codes⁽²⁾: F001

Applicable TRUCON Content Codes: RF 116A, RF 116C, RF 116D, RF 116DF, RF 116E, RF 116EF, RF 116F, RF 116G, RF 116GF, RF 116H, RF 116I, RF 116J, RF 116K, RF 116KF, RF 116L, RF 116M, RF 116MF, RF 116N, RF 116P, RF 116PF, RF 116Q, RF 116R, RF 116RF, RF 116S, RF 116SF, RF 116T

Acceptable Knowledge Information⁽¹⁾

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

Reviewed For Classification/UCNI

By V S SENDELWECK

Date 23 SEP 03 (UNA)

APPROVED FOR PUBLIC RELEASE

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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⁽¹⁾

(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, 21
- Headspace Gas Analysis
 - VOCs: Reference List, No. 7; 15
 - Flammable: Reference List, No. 7, 15
 - 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

9/23/03
Date

[Signature]
Signature of Site QA Officer

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

9/23/03
Date

- NOTE**
- (1) Use back of sheet or continuation sheets, if required.
 - (2) 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).
 - (3) This waste stream is not specifically identified in the WTWBIR, but it is similar to other waste that is identified in the WTWBIR. The WIPP ID assigned corresponds to the Waste Stream Profile Number. The Summary Category Group, Waste Matrix Code Group, and Waste Matrix Code are based on acceptable knowledge (see attached AK Summary). The BIR ID reported in WWIS is assigned using standard BIR conventions for those containers that do not have a valid BIR ID in the WTWBIR.
 - (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 52, Combustibles, February 2003.
2. Waste Stream and Residue Identification and Characterization (WSRIC), Version 7, and archived versions.
3. RFETS TRU Waste Acceptable Knowledge Supplemental Information, RF/RMRS-97-018, Revision 10, August 2002.
4. Waste and Environmental Management System (WEMS) database.
5. Transuranic (TRU) Waste Certification, PRO-X05-WC-4018, Revision 4, May 2002.
6. Acceptable Knowledge TRU/TRM Waste Stream Summaries, RMRS-WIPP-98-100, Section 7.11, Revision 0, July 2003.
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 RF101.29 (TRM Combustible and Plastic Wastes) Lot 1, TRG-112-03, July 2003.
11. Visual Examination for Confirmation of RTR, 4-H80-776-ASRF-007, Revision 5, June 2001.
12. TRU/TRM Waste Visual Verification (V²) and Data Review, PRO-1031-WIPP-1112, Revision 2, February 2003.
13. Real-Time Radiography Testing of Transuranic and Low-Level Waste, 4-W30-NDT-00664, Revision 5, October 2001.
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. PRO-1358-440-VERP, Glovebox and C-Cell Waste Operations, Revision 2, September 2002.
18. PRO-1608-VECRTR-371, RTR Visual Examination Confirmation, Building 371, Revision 0, October 2002.
19. PRO-1520-Mobile-RTR, Mobile Real-Time Radiography Testing of Transuranic and Low-Level Waste, Revision 0, May 2002.
20. Residue Repack, Building 371; PRO-544-SALT REPACK-371, Revision 5, January 2002.
21. Combustible Residue Repackaging, PRO-823-REPACK-371, Revision 1, March 2001.

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 # RF101.29

Item	Check Box ^a	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 ₉₀ 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 ₉₀ 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 ₉₀ 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 ₉₀ 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 ₉₀ 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.

^a 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

9/23/03
Date

Data Summary Report—Table 2: Headspace Gas Summary Data

WSPF # RF101.29

Sampling and Analysis Method (check one):

 100% Sampling Reduced Sampling

2A

ANALYTE ^a	# Samples ^b	Transform Applied ^c	Normality Test (Pass/Fail) ^d	Mean ^d	UCL ₉₅ ^d	Transformed RTL ^e	Un-Transformed RTL ^e (ppmV)	EPA Code ^f
1,1-Dichloroethane	0			0.447			NA	
1,2-Dichloroethane	0			0.330			10	
1,1-Dichloroethylene	0			0.403			10	
cis-1,2-Dichloroethylene	0			0.337			10	
trans-1,2-Dichloroethylene	0			1.375			10	
1,1,2,2-Tetrachloroethane	0			0.343			10	
1,1,1-Trichloroethane	3	Log	Fail ^h	-1.300	-1.051	2.3026	10	
1,1,2-Trichloro-1,2,2-Trifluoroethane	1	Log	Fail ^h	-1.423	1.177	2.3026	10	
1,2,4-Trimethylbenzene	0			0.373			NA	
1,3,5-Trimethylbenzene	0			0.362			NA	
Acetone	10	Log	Fail ^h	1.329	1.541	4.6052	100	
Benzene	4	Log	Fail ^h	-0.795	-0.598	2.3026	10	
Bromoform	0			0.355			10	
Butanol	2	Log	Fail ^h	1.762	1.920	4.6052	100	
Carbon disulfide	9	Log	Fail ^h	-0.401	-0.136	2.3026	10	
Carbon tetrachloride	12	Log	Fail ^h	0.696	1.435	2.3036	10	
Chlorobenzene	0			0.340			10	
Chloroform	9	Sq. Rt.	Fail ^h	1.009	1.225	3.1623	10	
Cyclohexane	1	Log	Fail ^h	-1.519	-1.342	NA	NA	
Ethyl benzene	2	Log	Fail ^h	-1.282	-0.945	2.3026	10	
Ethyl ether	0			0.682			10	
Methanol	3	Log	Fail ^h	2.119	2.271	4.6052	100	
Methyl ethyl ketone	3	Log	Fail ^h	0.902	1.118	4.6052	100	
Methyl isobutyl ketone	0			3.370			100	
Methylene chloride	1	Log	Fail ^h	-0.966	-0.820	2.3026	10	
o-Xylene	1	Log	Fail ^h	-1.318	-0.994	2.3026	10	
m,p-Xylene	2	Log	Fail ^h	-0.982	-0.594	2.3026	10	
Tetrachloroethylene	4	Log	Fail ^h	-1.279	-1.027	2.3026	10	
Toluene	27	Sq. Rt.	Pass	2.955	3.302	8.4885	72.02 ^g	
Trichloroethylene	0			0.460			10	

NOTES:

- ^a A total of 30 samples were collected and analyzed. Analysis was performed for all analytes identified. Samples were not composited.
- ^b Identifies the number of samples in which the associated analyte was detected.
- ^c 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)**

- ^d 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.
- ^e 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).
- ^f No entry indicates no associated EPA Code assigned to the waste stream based on headspace analysis.
- ^g Limit used for evaluation of EPA Hazardous Waste Code for toluene (Reference No. 3).
- ^h 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 # RF101.29

2B

TENTATIVELY IDENTIFIED COMPOUND	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC
Hexamethyldisiloxane, CAS # 107-46-0	630	1
Octamethyltrisiloxane, CAS # 107-51-7	26	1
Methylcyclohexane, CAS # 108-87-2	8.6	4
2-Butoxyethanol, CAS # 111-76-2	4.9	2
4-Methyl-1,3-dioxane, CAS # 1120-97-4	10	1
n-Heptane, CAS # 142-82-5	2.1	1
1-Methoxy-2-propanone, CAS # 5878-19-3	8.4	1
3-Methylhexane, CAS # 589-34-4	2.7	1
3-Methylheptane, CAS # 589-81-1	3.1	1
2-Methylhexane, CAS # 591-76-4	7.7	1
Ethanol, CAS # 64-17-5	6.8	1
1,2-Dimethyl-1,3-dioxane, CAS # 766-20-1	1.9	1

Did the data verify the acceptable knowledge? Yes No

Data as reported in Data Summary Report – Table 2 confirm acceptable knowledge in that no 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 # RF101.29**

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
- PCBs in concentrations greater than or equal to 50 ppm
- 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:

1. Did not identify any prohibited items in the waste container, or
2. 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.

CHARACTERIZATION INFORMATION SUMMARY

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

WSPF # RF101.29

Package No.	Radioassay Data Package	Headspace Sample Batch No.	Headspace VOC Data Package	RTR Data Package ^a	VE or VV Data Package ^b
D61769	SGS-371-DP-00-067	02W0044	HGAS-DP-00316	5R-0003	
D65317	CIQ-97-020	01W0160	HVOC-DP-00489	6T-2054	
D65393	CPN-01-019	01W0128	HVOC-DP-00458	6T-1793	
D67275	CIQ-00-021	00W0022	HVOC-DP-00296	6T-1661	
D67310	569IP1-DP-013102	02W0022	HGAS-DP-00343	6T-2027	
D67377	CIQ-97-003	01W0154	HVOC-DP-00483	6T-2011	
D67385	CIQ-97-016	01W0154	HVOC-DP-00483	6T-2011	
D68513	569IP1-DP-102501	01W0144	HVOC-DP-00472	5T-0251	
D68636	569IP1-DP-012502	01W0145	HVOC-DP-00473	6T-2003	
D70374	CIQ-97-008	01W0224	HVOC-DP-00554	6R-033	
D70449	CIQ-97-020	01W0141	HVOC-DP-00469	6T-2003	
D70768	CIQ-97-011	01W0195	HVOC-DP-00521	6T-2033	
D70900	CIQ-97-007	01W0200	HVOC-DP-00526	6T-2041	
D71106	CIQ-97-002	01W0139	HVOC-DP-00468	6T-2013	
D71505	569IP1-DP-012502	01W0193	HVOC-DP-00517	6T-2005	
D71619	569IP1-DP-011602	01W0144	HVOC-DP-00472	6T-2001	
D71709	569IP1-DP-012902	01W0148	HVOC-DP-00477	5T-0283	
D71823	569IP1-DP-020802	01W0206	HVOC-DP-00532	5T-0286	
D71950	569IP1-DP-103001	01W0144	HVOC-DP-00472	6T-2068	
D71954	SGS-371-DP-99-009	01W0229	HVOC-DP-00558	6T-2068	
D72120	CIQ-01-056	01W0162	HVOC-DP-00491	6T-1884	
D75265	CIQ-97-022	01W0051	HVOC-DP-00399	6T-1745	
D77813	CIQ-01-057	01W0179	HVOC-DP-00506	6T-1865	
D79702	569IP1-DP-013102	02W0022	HGAS-DP-00343	6T-2028	
D83205	569IP1-DP-082201	00W0041	HVOC-DP-00316	5T-0231	
D87560	CIQ-01-014	01W0165	HVOC-DP-00494	6T-1743	
D96159	CIQ-99-020	01W0099	HVOC-DP-00433	6T-1726	
DB4868	569IP1-DP-040102	01W0215	HVOC-DP-00543	5T-0149	
DB5941	CPN-01-039	01W0199	HVOC-DP-00525	5T-0158	
DB8741	569IP1-DP-021402	02W0151	HGAS-DP-00256	5T-0288	

NOTES:

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

^b No entry indicates container was not selected for visual examination to confirm RTR and did not undergo VV at the time of waste packaging using the VE technique.

Acceptable Knowledge Summary

WSPF # RF101.29

RMRS-WIPP-98-100, Acceptable Knowledge TRU/TRM Waste Stream Summaries, Section 7.11, TRM Combustible and Plastic Waste (F001) (attached).



Rocky Flats Environmental Technology Site

ACCEPTABLE KNOWLEDGE INFORMATION

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

RMRS-WIPP-98-100

Section 7.11

TRM Combustible and Plastic Wastes (F001)

Profile No. RF101.29

Revision 1

Reviewed for Classification/UCNI

By: Unclassified Not UCNI

Reference Exemption Number CEX-032-00

Date: September 19, 2003 VSS

Approval signatures in Site Document Control history file

7.11 TRM Combustible and Plastic Wastes (F001)

Profile No. **RF101.29**

Acceptable Knowledge Waste Stream Summary

Waste Stream Name: TRM Combustible and Plastic Wastes (F001)

Generation Buildings: Buildings 371, 440, 559, 707, 771, 774, 776, and 777^(5,12)

Waste Stream Volume (Retrievably Stored): 1 85-gallon drum and 116 55-gallon drums^(5,12)

Generation Dates (Retrievably Stored): October 1986 – April 2001^(5,12)

Waste Stream Volume (Newly Generated): 4 55-gallon drums^(5,12)

Generation Dates (Newly Generated): January 2002 – April 2002^(5,12)

Waste Stream Volume (Projected): 2 55-gallon drums^(11,12)

Generation Dates (Projected): January 2003 – June 2003^(11,12)

TRUCON Content Codes⁽¹⁾: RF 116A, RF 116C, RF 116D, RF 116DF, RF 116E, RF 116EF, RF 116F, RF 116G, RF 116GF, RF 116H, RF 116L, RF 116J, RF 116K, RF 116KF, RF 116L, RF 116M, RF 116MF, RF 116N, RF 116P, RF 116PF, RF 116O, RF116R, RF 116RF, RF 116S, RF 116SF, RF 116T

Process Knowledge Demonstrates Flammable VOCs in Headspace < 500 ppm: Yes (see Sec. 7.11.6)

7.11.1 Transuranic Waste Baseline Inventory Report Information⁽²⁾

WIPP Identification Numbers: RF101.29

Summary Category Group: S5000 Waste Matrix Code Group: Combustible Waste

Waste Matrix Code: S5390

Waste Stream Name: TRM Combustible and Plastic Wastes (F001)

Description from the TWBIR: Cloth, paper, cellulosic, and plastic debris material generated from plutonium operations/activities with assigned EPA Hazardous Waste Number F001.

NOTE: This waste stream is not identified in the TWBIR but differs only in hazardous waste code from other combustible waste streams. The WIPP ID assigned corresponds to the Waste Stream Profile Number. The Summary Category Group, Waste Matrix Code Group, and Waste Matrix Code are based on acceptable knowledge as provided in Section 7.11.2.

7.11.2 Waste Stream Description

Transuranic mixed (TRM) combustible and plastic wastes assigned EPA Hazardous Waste Number F001 consist of dry combustibles, wet combustibles, and plastic. In accordance with Attachment B4 of the WAP, this waste stream is assigned Summary Category Group S5000 and Waste Matrix Code Group *Combustible Waste*. Table 7.11-1 presents the waste matrix codes and waste material parameters for combustible and plastic wastes.⁽³⁾

Table 7.11-1, Combustible and Plastic Waste (F001) Description

IDC	IDC Description	Waste Matrix Code	Waste Material Parameters	Weight % (Average)
330	Dry Combustibles	S5390, Unknown/	Cellulosics ¹	85%
821	Dry Combustibles, TRU Waste	Other Organic Debris	Plastics ²	10%
831	Dry Combustibles, TRM Waste		Iron-based Metal/Alloys	4%
			Other Inorganic Materials	1%
336	Wet Combustibles	S5390, Unknown/	Cellulosics ¹	85%
822	Wet Combustibles, TRU Waste	Other Organic Debris	Plastics ²	11%
832	Wet Combustibles, TRM Waste		Iron-based Metal/Alloys	2%
			Rubber	1%
			Aluminum-based Metal/Alloys	1%
337	Plastic	S5390, Unknown/	Plastics ²	95%
825	Plastic, TRU Waste	Other Organic Debris	Cellulosics ¹	3%
833	Plastic, TRM Waste		Iron-based Metal/Alloys	1%
			Other Inorganic Materials	1%

Notes:

1. The average weight percent of cellulosic materials is based on RTR and includes the fiberboard liner.
2. The average weight percent of plastic materials is based on RTR and includes plastic liner bags.

IDC 330, Dry Combustibles: Dry combustibles such as cloth, paper, and wood. Dry combustibles are assigned IDC 330 at the point of generation and may change to IDC 821 or 831 following radioassay to designate them as being TRU waste or TRM waste. Some containers in this waste stream may be assigned IDC 821 because F-listed solvent VOCs were detected in the headspace gas but are being managed as non-mixed waste until the waste is ready for off-site shipment at which point the EPA hazardous waste number is applied (refer to Section 7.11.5). RTR inspection of containers assigned these IDCs have identified significant amounts of plastic materials. Containers with more than 50% plastic, by weight, are reassigned the appropriate plastic IDC.⁽⁴⁾

IDC 336, Wet Combustibles: Wet combustibles such as paper, cloth, and wood that contain a discernible amount of moisture. The wastes are drained or wrung out before packaging to prevent accumulation of free liquid. Wet combustibles are assigned IDC 336 at the point of generation and may change to IDC 822 or 832 following radioassay to designate them as being TRU waste or TRM waste. Some containers in this waste stream may be assigned IDC 822 because F-listed solvent VOCs were detected in the headspace gas but are being managed as non-

mixed waste until the waste is ready for off-site shipment at which point the EPA hazardous waste number is applied (refer to Section 7.11.5). RTR inspection of containers assigned this IDC has identified significant amounts of plastic materials. Containers with more than 50% plastic, by weight, are reassigned the appropriate plastic IDC.⁽⁴⁾

IDC 337, Plastic: Plastics may include polyvinyl chloride (PVC) sheeting, poly bottles, supplied air suits, polyethylene, and other plastics. Plastics are assigned IDC 337 at the point of generation and may change to IDC 825 or 833 following radioassay to designate them as being TRU waste or TRM waste. Some containers in this waste stream may be assigned IDC 825 because F-listed solvent VOCs were detected in the headspace gas but are being managed as non-mixed waste until the waste is ready for off-site shipment at which point the EPA hazardous waste number is applied (refer to Section 7.11.5). This IDC includes containers originally assigned combustibles IDCs that were reassigned because RTR inspection of the containers identified more than 50% plastic, by weight.⁽⁴⁾

7.11.3 Areas of Operation

TRM combustible and plastic wastes assigned EPA Hazardous Waste Number F001 are generated by the following defense operations in Buildings 371, 440, 559, 707, 771, 774, 776, and 777.^(3,4,5,6,7,8,9,10)

- Plutonium Production
- Waste and Residue Repackaging and Treatment
- Decontamination and Decommissioning Operations (D&D)

7.11.4 Generation Processes

This waste stream includes combustible and plastic wastes assigned EPA hazardous waste number F001 generated primarily from production operations, but also includes combustible and plastics from waste and residue repackaging and treatment operations and D&D operations. These wastes are similar in material, physical form, and hazardous constituents, and therefore constitute a single waste stream.^(4,6,7,8,9,10)

TRM combustible and plastic wastes assigned EPA hazardous waste number F001 in inventory were primarily generated from production operations in Building 707. These operations include the casting processes conducted in Modules A, J, and K. Carbon tetrachloride was piped to the casting gloveboxes and used in conjunction with combustibles for cleaning the gloveboxes. The floors in these modules were periodically stripped with methylene chloride and repainted with leaded paint for contamination control.^(4,6)

Carbon tetrachloride contaminated waste was generated in gloveboxes; in equipment utilized for casting, rolling and forming; and in machining processes. Molten plutonium was cast into parts using graphite molds or ingots using stainless steel molds in the Building 707 Foundry. Plutonium ingots from the Foundry were sent to the

Rolling/Forming process where the ingots were rolled into sheets in the rolling mill, and parts stamped from the sheets. Rags and carbon tetrachloride were utilized to clean the mill rollers. The parts from this process, and newly cast parts were weighed and milled in the Machining processes in Buildings 707 and 777. Kimwipes, rags, and carbon tetrachloride were used for cleaning parts and machining gloveboxes. Plutonium turnings and scraps from the rolling and machining processes were collected and sent to the Briquetting processes in Buildings 707 and 777. These materials were then placed in baskets and immersed in carbon tetrachloride baths. After cleaning, the scrap materials were air dried, then pressed into pucks, and returned to the Foundry for re-casting. Combustibles were used in this process for cleaning and material handling.^(4,6,7)

TRM combustible and plastic wastes assigned EPA hazardous waste number F001 are also generated in Buildings 371 and 440 from the repackaging of combustibles from the above processes. Waste containers are opened, the contents removed and inspected, then repackaged to meet Interim Safe Storage Criteria and WIPP Waste Acceptance Criteria.^(8,9)

Other current waste generation activities include decontamination and decommissioning activities of gloveboxes and equipment used for historical operations in Building 776/77.⁽¹⁰⁾

7.11.5 RCRA Characterization

This waste stream is characterized as a mixed waste. The specific BWR Baseline Book Subpopulations and WSRIC Process Numbers associated with combustible and plastic wastes assigned EPA hazardous waste number F001 are listed in the WEMS AK Waste Stream Summary for Profile Number RF101.29.⁽⁵⁾

This waste stream was generated primarily from historical production operations in Buildings 707 and 777. These operations used carbon tetrachloride for cleaning and degreasing. Therefore, these wastes are assigned EPA hazardous waste number F001.^(4,6,7)

The repackaging processes in Building 371 and 440 did not use hazardous constituents. The F001 assigned to combustibles and plastics from these processes are derived from the EPA hazardous waste numbers assigned to the waste that was treated and/or repackaged.^(4,8,9)

Hazardous constituents are not used for D&D of gloveboxes and equipment. The F001 assigned to combustibles and plastics from D&D operations are derived from the EPA hazardous waste numbers assigned to materials previously handled in these gloveboxes.⁽¹⁰⁾

This waste stream also includes containers generated in Buildings 371, 559, 707, 771, 774, 776, and 777 that were originally assigned to a different waste stream by acceptable knowledge (AK), but were subsequently segregated into this waste stream after completion of headspace gas sampling/analysis. EPA hazardous waste number F001 was added to this waste because detectable concentrations of carbon tetrachloride was found in the container headspace.⁽⁴⁾

Visual examination of waste contents at the time of packaging and/or RTR is used to verify that the waste stream does not contain free liquid, explosives, non- radionuclide pyrophoric materials, compressed gasses, or reactive waste. Therefore, this waste stream does not exhibit the characteristics of ignitability (D001), corrosivity (D002), or reactivity (D003).

Beryllium parts were used in the manufacture/assembly of weapons components, and residual beryllium contamination of plutonium parts may have occurred. Combustibles and plastics associated with these operations may have been contaminated with beryllium and therefore, trace quantities (less than one weight percent) of beryllium may be present in the waste stream. Any beryllium present is as a contaminant of the process and not as unused commercial chemical product, and therefore is not a P015-listed waste. Based on an evaluation of this waste and the processes that generated the waste, including chemical usage, this waste stream does not exhibit the characteristic of toxicity and was not mixed with any another listed waste.^(3,8,10)

The combustible and plastic waste streams generated at RFETS and sent to the INEEL for storage have the same IDC but are considered different waste streams because of the EPA hazardous waste numbers assigned. The INEEL waste streams (Local ID Numbers ID-RFO-330T, ID-RFO-336T, and ID-RFO-337T) were generated and shipped to INEEL prior to the full implementation of RCRA and therefore, EPA hazardous waste numbers were assigned to each IDC as a whole.⁽²⁾

Headspace gas sampling and analysis of containers assigned to this waste stream by AK detected 17 VOCs. Using the "WIPP directed" methodology, no analytes were found to exceed their associated PRQL values.⁽¹³⁾ However F001 was assigned due to the historical areas of generation and is therefore retained for this waste stream.

7.11.6 Transportation

The payload containers in this waste stream must also comply with the TRUPACT-II Authorized Methods for Payload Control (TRAMPAC) requirements. Flammable volatile organic compounds (VOCs) were not identified in this waste stream based on the descriptions in the *BWR Baseline Book* and *WSRIC Building Books*. Therefore, flammable VOCs in the payload container headspace are not expected to exceed 500 ppm.^(4,6,7,8,9,10)

7.11.7 Radionuclides

Table 7.11-2 presents the radionuclides potentially present in TRM combustible and plastic wastes assigned EPA Hazardous Waste Number F001.⁽³⁾

Table 7.11-2, Combustible and Plastic Waste (F001) Radionuclides

IDC	Description	Radionuclides ^{1,2,3}	Rationale
330 821 831	Dry Combustibles	WG Pu, Am-241, DU, EU, Np-237, Am-243	IDC generated in nearly every TRU building; radionuclides dependent on generation process
336 822 832	Wet Combustibles	WG Pu, Am-241, DU, EU, Np-237, Am-243	IDC generated in every TRU building; radionuclides dependent on generation process
337 825 833	Plastic	WG Pu, Am-241, DU, EU, Np-237, Am-243	IDC generated in nearly every TRU building; radionuclides dependent on generation process

Notes:

1. Am-241 is indicated only for IDCs (unless noted otherwise) in which americium operations were performed (e.g., molten salt extraction). Am-241 will be present in all IDCs but is not indicated if it is expected to be present only due to plutonium-241 decay. However Am-241 will be part of the NDA evaluations per the CH-WAC.
2. DU and EU are indicated only for IDCs in which uranium was used or could be anticipated to be a major constituent. However uranium isotopes will be present in all IDCs as a decay product and U-234 and U-238 are evaluated by or calculated from radioassay as a CH-WAC requirement.
3. Am-243 was not initially predicted to be present by AK; however, it has been identified by NDA and is therefore added as a potential radionuclide in this waste stream.

Key: WG Pu weapons-grade plutonium Am-241 americium-241
 EU enriched uranium Np-237 neptunium-237
 DU depleted uranium Am-243 americium-243

7.11.8 References

1. RFETS 2003. Transuranic (TRU) Waste Management Manual, Revision 6, 1-MAN-008-WM-001.
2. DOE 1995. Transuranic Waste Baseline Inventory Report, Revision 2. DOE/CAO-95-1121.
3. RFETS 2002. RFETS TRU Waste Acceptable Knowledge Supplemental Information. RF/RMRS-97-018, Revision 10.
4. RFETS 2003. Backlog Waste Reassessment Baseline Book, Waste Form 52, Combustibles.
5. Waste and Environmental Management System (WEMS) database.
6. EG&G 1991. Waste Stream and Residue Identification and Characterization Building 707, Version 3.0.
7. EG&G 1991. Waste Stream and Residue Identification and Characterization Building 777, Version 3.0.
8. RFETS 2003. Waste Stream and Residue Identification and Characterization Building 371, Version 7.0.
9. RFETS 2003. Waste Stream and Residue Identification and Characterization Building 440, Version 7.0.
10. RFETS 2003. Waste Stream and Residue Identification and Characterization Building 776/777, Version 7.0.
11. WASTREN 2003. Interoffice Memorandum from Jeff Harrison to Eric D'Amico. JLH-011-2003. February 12.
12. WASTREN 2003. Interoffice Memorandum from Vivian S. Sendelweck to Waste Records Center. VSS-022-2003. July 11.
13. Interoffice Memorandum from Thomas R. Gatliffe to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile Number RF101.29 Lot 1, TRG-112-03, July 2003.