

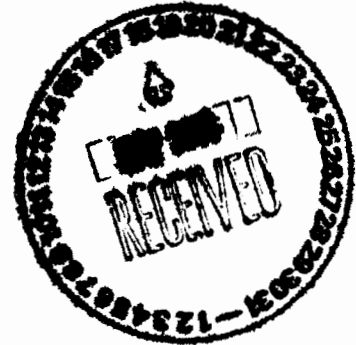


Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

May 17, 2001

 ENTERED

Mr. Steve Zappe
Hazardous Waste Permits Program
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 – A Galisteo
Santa Fe, New Mexico 87502-6110



RE: Transmittal of Approved Waste Stream Profile Form for Rocky Flats
Environmental Technology Site, Waste Stream Profile Form Number RF010.01

Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office has approved the Rocky Flats Environmental Technology Site, Waste Stream Profile Form for Waste Stream RF010.01. Enclosed is a copy of the approved form as required by Section B-4(b)(1) of the WIPP's Hazardous Waste Facility Permit No. NM4890139088-TSDF.

If you have any questions on this matter, please contact me at (505) 234-7357 or (505) 361-0265.

Sincerely,

Kerry W. Watson
Assistant Manager
Office of National TRU Program

Enclosure

cc: w/o enclosure
K. Watson, CBFO
S. Hunt, CBFO
H. Johnson, CBFO
J. Kieling, NMED
C. Walker, TechLaw
J. Cotton, WTS
B. Kehrman, WTS
C. Riggs, CTAC

CBFO:NTP:KWW:VW:01-1020:UFC 5822

010526



WIPP WASTE STREAM PROFILE FORM

RF010.01, Revision 0

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May 2, 2001

Waste Stream Profile Number: RF010.01

Generator site name: RFETS

Technical contact: Eric D'Amico

Generator site EPA ID: CQ7890010526

Phone number: (303) 966-5362

Date of audit report approval by NMED: March 9, 2000 as amended February 7, 2001

Title, version number, and date of documents used for WAC certification: Rocky Flats Environmental Technology Site TRU Waste Characterization Program Quality Assurance Project Plan, 95-QAIP-0050, Revision 4, October 2000, Revision 5, April 2001, Transuranic (TRU) Waste Management Manual, Revision 4, 1-MAN-008-WM-001, December 2000, WIPP Waste Acceptance Criteria, Revision 7, DOE/WIPP-069, November 1999.

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: RF-TR0331 (RF-W120), RF-TR0335 (RF-W120), RF-TT0335 (RF-W120), RF TR0338 (RF-W120), RF-TT0338 (RF-W120), RF-TR0342 (RF-W120), RF-TR0376 (RF-W121), RF-TT0376 (RF-W121), RF-TT0490 (RF-W120), RF-TT0491 (RF-W120), RF-MT-0492 (RF-W066)

Summary Category Group: S5000 Waste Matrix Code Group: Filters (S5410)

Waste Stream Name: Filters & Media/TRU and Cemented Filters/TRU

Description from the WTWBIR: Filters & media consist of pieces ranging in size from 20"x 20" x 4" to 2"x2" square pieces. Processed filter media is material which has been treated using Portland cement to absorb moisture and neutralize acid contamination.

Defense TRU Waste: Yes No

Check one: CH RH Number of SWBs 575 Number of Drums 2,717 Number of Canisters N/A

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

List applicable EPA Hazardous Waste Codes⁽²⁾: None

Applicable TRUCON Content Codes: RF 119A, RF 119C, RF 119D, RF 119DE, RF 119E, RF 119EF, RF 119F, RF 119G, RF 119GF, RF 119I, RF 119J, RF 119K, RF 119KF, RF 119L, and RF 119M, RF 119MF, RF 119N, RF 119P, RF 119PF, RF 119Q, RF 130A, RF 130B, RF 130BA, RF 130D, RF 130DF, RF 130E, RF 130F, RF 130G, RF 130GF, RF 130J, RF 130K, RF 130P, RF 130PF, RF 130PA, RF 130PAF

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. 10, 11
- 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

- | | |
|--|---|
| <input checked="" type="checkbox"/> Weapons activities including defense inertial confinement fusion | <input type="checkbox"/> Naval Reactors development |
| <input type="checkbox"/> Verification and control technology | <input type="checkbox"/> Defense research and development |
| <input type="checkbox"/> Defense nuclear waste and material by products management | <input type="checkbox"/> Defense nuclear materials production |
| <input type="checkbox"/> Defense nuclear waste and materials security and safeguards and security investigations | |

Supplemental Documentation: See the References section in the Acceptable Knowledge Summary (attached) for additional backup documentation associated with this waste stream.

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

Sampling and Analysis Information⁽¹⁾

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

- Radiography: Reference List Nos. 7, 8
- Visual Examination: Reference List No. 12
- Headspace Gas Analysis
 - VOCs: Reference List No. 9
 - Flammable: Reference List No. 9
 - 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 of Site Project Manager

G. A. O'Leary, Site Project Mgr.
Printed Name and Title

5-2-01
Date

- NOTE**
- (1) Use back of sheet or continuation sheets, if required.
 - (2) If radiography, visual examination, headspace gas analysis, and/or homogeneous solids/soils/gravel sample analysis were used to determine EPA Hazardous Waste Codes, attach Characterization Information Summary documenting this determination.

REFERENCE LIST

1. Backlog Waste Reassessment Baseline Book, Waste Form 54, Filters and Filter Waste, December 2000.
2. Waste Stream and Residue Identification and Characterization (WSRIC), Revision 6, and archived versions.
3. RFETS TRU Waste Acceptable Knowledge Supplemental Information, RF/RMRS-97-018, Revision 8, December 2000.
4. Waste and Environmental Management System (WEMS) database.
5. Transuranic Waste Certification, 1-PRO-X05-WC-4018, Revision 2, December 2000.
6. Acceptable Knowledge TRU/TRM Waste Stream Summaries, RMRS-WIPP-98-100, Revision 10, January 2001.
7. Real-Time Radiography Testing of Transuranic and Low-Level Waste, 4-W30-NDT-00664, Revision 4, February 2001.
8. Real-Time Radiography Testing of Transuranic and Low-Level Waste in Building 569, 4-119-NDT-00569, Revision 5, February 2001.
9. GC/MS Determination of Volatile Organics Waste Characterization, L-4111-U, December 2000.
10. Waste Characterization, Generation, and Packaging, 1-PRO-079-WGI-001, Revision 3, December 2000.
11. Waste Characterization Program Manual, 1-MAN-036-EWQA-Section 1.6.1, Revision 2, September 2000.
12. Visual Examination for Confirmation of RTR, 4-H80-776-ASRF-007, Revision 4, March 2001.
13. Interoffice Memorandum from Thomas R. Gatliffe to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For The Confirmation Of EPA Hazardous Waste Numbers Using Headspace Gas Analytical Results For Waste Stream Profile Number RF010.01 Lot 1, TRG-108-00, November 2000.


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 # RF010.01

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 miscertification 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	✓	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

5-2-01
Date

CHARACTERIZATION INFORMATION SUMMARY

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Data Summary Report—Table 2: Headspace Gas Summary Data

WSPF # RF010.01

Sampling and Analysis Method (check one):

100% Sampling

Reduced Sampling

2A

ANALYTE	# Samples ^b	Maximum (ppmv)	Mean ^a (ppmv)	SD ^a (ppmv)	UCL ₉₅ ^a (ppmv)	RTL ^a (ppmv)	EPA Code ^a
1,1-Dichloroethane						NA	
1,2-Dichloroethane						10	
1,1-Dichloroethylene						10	
cis-1,2-Dichloroethylene						NA	
1,1,2,2-Tetrachloroethane						10	
1,1,1-Trichloroethane						10	
1,1,2-Trichloro-1,2,2-Trifluoroethane						10	
Acetone	29	31	6.86	7.33	8.33	100	
Benzene	5	3.7	0.33	0.70	0.47	10	
Bromoform						NA	
Butanol						100	
Carbon disulfide	1	0.3	0.15	0.02	0.16	10	
Carbon tetrachloride	1	1.4	0.18	0.19	0.22	10	
Chlorobenzene						10	
Chloroform	4	7.5	0.38	1.13	0.61	10	
Ethyl benzene	1	0.74	0.16	0.09	0.18	10	
Ethyl ether						100	
Methanol	24	79	20.0	22.5	24.54	100	
Methyl ethyl ketone	24	13	3.64	3.43	4.33	100	
Methyl isobutyl ketone	2	4.7	1.49	0.62	1.61	100	
Methylene chloride	1	0.41	0.16	0.04	0.16	10	
o-Xylene						10	
m,p-Xylene	1	0.57	0.16	0.06	0.17	10	
Tetrachloroethylene						10	
Toluene	40	41	7.9	8.4	9.55	72.02 ^d	
Trichloroethylene						10	

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

WSPF # RF010.01

2B

TENTATIVELY IDENTIFIED COMPOUND	Maximum Observed Estimated Concentrations (ppmv) ^b	# Samples Containing TIC ^b
No TICs included in the 40 CFR 261 Appendix VIII list were detected in at least 25 percent of the headspace gas samples for the waste stream lot.		

Did the data verify the acceptable knowledge? Yes No

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

NOTES:

- ^a No entry indicates no associated EPA Code assigned to the waste stream.
- ^b Analysis was performed on all analytes identified. No entry indicates no detectable measurements available for statistics. Samples used to prepare profile were not composited.
- ^c 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 hazardous waste constituent and so has no associated regulatory threshold.
- ^d Limit used for evaluating EPA Hazardous Waste Code for toluene (Reference No. 3).
- ^e Statistics based on using 1/2 MDL for less-than-detectable observations.

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

WSPF # RF010.01

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
- PCBs in concentrations greater than or equal to 50 ppm
- Waste exhibiting the characteristics of ignitability, corrosivity or reactivity

CHARACTERIZATION INFORMATION SUMMARY

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 May 2, 2001

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

WSPF # RF010.01

Drum No.	Headspace Sample Batch No.	Headspace VOC Data Package	Radioassay Data Package	RTR Data Package
D46500	00W0060	HVOC-DP-00333	CIQ-00-036	5T-0120
D61715	00W0073	HVOC-DP-00345	CIQ-00-051	6T-1704
D63860	00W0076	HVOC-DP-00349	CPN-00-023	6T-1692
D64021	00W0059	HVOC-DP-00331	CIQ-00-046	6T-1700
D64490	00W0059	HVOC-DP-00332	CIQ-00-034	5T-0117
D65364	00W0074	HVOC-DP-00346	CIQ-00-052	6T-1704
D65479	00W0078	HVOC-DP-00350	CIQ-00-048	6T-1709
D65692	00W0069	HVOC-DP-00341	CIQ-01-001	6T-1699
D65927	00W0078	HVOC-DP-00350	CIQ-00-048	6T-1709
D66372	00W0066	HVOC-DP-00337	CIQ-00-038	5T-0122
D66735	00W0076	HVOC-DP-00349	CIQ-00-050	6T-1708
D67536	00W0078	HVOC-DP-00349	CIQ-00-049	6T-1710
D68545	00W0073	HVOC-DP-00345	CIQ-01-001	6T-1703
D68657	00W0079	HVOC-DP-00352	CIQ-00-050	6T-1710
D70027	00W0073	HVOC-DP-00345	CIQ-00-051	6T-1704
D70119	00W0055	HVOC-DP-00327	CIQ-00-032	6T-1684
D70602	00W0055	HVOC-DP-00326	CIQ-00-032	6T-1684
D71056	00W0074	HVOC-DP-00345	CIQ-00-051	6T-1705
D71073	00W0055	HVOC-DP-00326	CIQ-00-032	6T-1685
D71163	00W0067	HVOC-DP-00339	CIQ-00-040	6T-1696
D71200	00W0073	HVOC-DP-00345	CIQ-00-051	6T-1705
D71311	00W0059	HVOC-DP-00332	CIQ-00-037	5T-0117
D71785	00W0059	HVOC-DP-00331	CIQ-00-044	5T-0117
D71789	00W0079	HVOC-DP-00352	CIQ-00-049	6T-1711
D71793	00W0079	HVOC-DP-00352	CIQ-00-049	6T-1712
D71795	00W0075	HVOC-DP-00347	CPN-00-022	6T-1707
D71797	00W0072	HVOC-DP-00343	CIQ-00-046	6T-1701
D72151	00W0060	HVOC-DP-00333	CIQ-00-036	5T-0119
D72153	00W0079	HVOC-DP-00352	CIQ-00-050	6T-1711
D72418	00W0079	HVOC-DP-00352	CIQ-00-051	6T-1710
D73855	00W0069	HVOC-DP-00341	CIQ-00-040	6T-1697
D77372	00W0057	HVOC-DP-00330	CIQ-00-045	6T-1700
D77935	00W0076	HVOC-DP-00348	CIQ-00-051	6T-1706
D80372	00W0060	HVOC-DP-00332	CIQ-00-043	5T-0120
D81527	00W0078	HVOC-DP-00349	CIQ-00-048	6T-1709
D81530	00W0060	HVOC-DP-00333	CIQ-00-037	5T-0119
D81532	00W0078	HVOC-DP-00350	CIQ-00-050	6T-1709
D81613	00W0060	HVOC-DP-00332	CIQ-00-037	5T-0119
D81722	00W0067	HVOC-DP-00338	CIQ-00-038	6T-1695

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

WSPF # RF010.01

Drum No.	Headspace Sample Batch No.	Headspace VOC Data Package	Radioassay Data Package	RTR Data Package
D83842	00W0061	HVOC-DP-00334	CIQ-00-043	5T-0120
D86120	00W0063	HVOC-DP-00336	CIQ-00-038	5T-0122
DA6797	00W0063	HVOC-DP-00336	CIQ-01-008	6T-1627

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NOTE:

None of the containers listed were selected for visual examination.

Acceptable Knowledge Summary

WSPF # RF010.01

RMRS-WIPP-98-100, Acceptable Knowledge TRU/TRM Waste Stream Summaries, Section 6.10, TRU Filter Debris Waste (attached).

6.10 TRU Filter Debris Waste

Profile No. RF010.01

Acceptable Knowledge Waste Stream Summary

Waste Stream Name: TRU Filter Debris Waste

Generation Buildings: Buildings 371, 374, 559, 707, 771, 774, 776, 777, 779, and 881^(4,5,6)

Waste Stream Volume (Current): 938 55-gallon drums and 40 Standard TRUPACT-II boxes^(5,6)

Generation Dates (Current): July 1984 – April 2001^(5,6)

Waste Stream Volume (Projected): 1,779 55-gallon drums and 535 Standard Waste Boxes^(6,7)

Generation Dates (Projected): May 2001 – February 2006⁽⁷⁾

TRUCON Content Codes:

HEPA and Pre-Filters⁽¹⁾: RF 119A, RF 119C, RF 119D, RF 119DF, RF 119E, RF 119EF, RF 119F, RF 119G, RF 119GF, RF 119I, RF 119J, RF 119K, RF 119KF, RF 119L, and RF 119M, RF 119MF, RF 119N, RF 119P, RF 119PF, RF 119Q

Filter Media & Processed Media⁽¹⁾: RF 130A, RF 130B, RF 130BA, RF 130D, RF 130DF, RF 130E, RF 130F, RF 130G, RF 130GF, RF 130J, RF 130K, RF 130P, RF 130PF, RF 130PA, RF 130PAF

6.10.1 Transuranic Waste Baseline Inventory Report Information⁽²⁾

WIPP Identification Numbers: RF-TR0331, RF-TR0335, RF-TT0335, RF TR0338, RF-TT0338, RF-TR0342, RF-TR0376, RF-TT0376, RF-TT0490, RF-TT0491, RF-MT0492

Summary Category Group: S5000 Waste Matrix Code Group: Filters

Waste Matrix Code: S5410

Waste Stream Name: Filters & Media/TRU and Cemented Filters/TRU

Description from the TWBIR: Filters & media consist of pieces ranging in size from 20"x 20" x4" to 2"x2" square pieces. Processed filter media is material which has been treated using Portland cement to absorb moisture and neutralize acid contamination.

Note: IDC 492 has been re-characterized as nonhazardous waste.⁽⁴⁾

05/04/01

6.10.2 Waste Stream Description

TRU filter debris consists of Ful-Flo filters (IDC 331), acid- and nonacid-contaminated absolute drybox filters (IDCs 342 and 335), acid- and nonacid-contaminated HEPA filters (IDCs 492 and 490), filter media (IDC 338), processed filter media (IDC 376), and pre-filters (IDC 491). Table 6-31 presents the waste matrix codes and waste material parameters for filter debris.⁽³⁾

Table 6-31, Filter Debris Waste Description

IDC	IDC Description	Waste Matrix Code	Waste Material Parameters	Weight % (Average)
331	Ful-Flo Filters, not from Incinerator	S5410, Composite Filters	Cellulosics Plastics Organic Matrix	45% 45% 10%
335	Absolute Drybox Filters, Not Acid Contaminated	S5410, Composite Filters	Cellulosics Aluminum-based Metal/Alloys Other Inorganic Materials Rubber	80% 13% 5% 2%
338	Filter Media	S5410, Composite Filters	Aluminum-based Metal/Alloys Other Inorganic Materials	74% 26%
342	Absolute Drybox Filters, Acid Contaminated	S5410, Composite Filters	Cellulosics Aluminum-based Metal/Alloys Other Inorganic Materials Rubber	80% 13% 5% 2%
376	Processed Filter Media	S5410, Composite Filters	Aluminum-based Metal/Alloys Other Inorganic Materials Cellulosics Plastics Organic Matrix	Note 2
490	HEPA Filters (24 x 24), Not Acid Contaminated	S5410, Composite Filters	Cellulosics Aluminum-based Metal/Alloys Other Inorganic Material Rubber	64% 26% 9% 1%
491	Pre Filter	S5410, Composite Filters	Cellulosics Plastic ¹ Other Inorganic Material Iron-based Metal/Alloys Aluminum-based Metal/Alloys Other Metals	59% 22% 10% 7% 1% 1%
492	HEPA Filters (24 x 24), Acid Contaminated	S5410, Composite Filters	Cellulosics Aluminum-based Metal/Alloys Other Inorganic Material Rubber	64% 26% 9% 1%

Notes:

1. The average weight percent of plastic materials is based on RTR and includes packaging material (e.g., round bottom liner).
2. Waste material parameter weights may vary depending on whether the waste is processed HEPA filters or Ful-Flo filters.

IDC 331, Ful-Flo Filters not from Incinerators: Ful-Flo filters are in-line cartridge type filters used for collecting particulates from liquid streams. The materials of construction for Ful-Flo filters vary depending on the filter type and style. Some are comprised of a cellulose or acrylic fiber with a phenolic or melamine resin binder. Others have a winding and matrix of polypropylene or cotton with a polypropylene core. Other filters, such as R-6 cloth filter pads, may be included in this IDC.⁽⁴⁾

IDC 335, Absolute Drybox Filters, Not Acid Contaminated: Drybox filters, not acid contaminated, are HEPA filters used on glovebox air intakes and exhausts. The filters consist of a filter medium contained within a wood frame. Older medium consisted of glass fiber with a small percentage of asbestos and a corrugated aluminum foil. Newer medium is constructed of glass and aromatic polyamide fibers (Nomex) and aluminum alloy metal. Wood filter frames are constructed of 3/4-inch fire retardant exterior grade plywood, or particle board.⁽⁴⁾

IDC 338, Filter Media: Filter media is primarily the filter media portion of HEPA filters. The wood frame was removed and packaged as IDC 330, and the filter media was sent for plutonium recovery. The filter media was identified as IDC 338 if it was high in radioactivity. R-6 cloth filter pads may also be included.⁽⁴⁾

IDC 342, Absolute Drybox Filters Acid Contaminated: Absolute drybox filters, acid contaminated, are HEPA filters from gloveboxes with atmospheres that could cause the filters to be contaminated with acids or bases used in chemical processing. The materials of construction for these filters are the same as IDC 335.⁽⁴⁾

IDC 376, Processed Filter Media: This waste consists of the filter media portion of acid-contaminated glovebox or plenum HEPA filters (IDCs 342 and 492) or Ful-Flo filters with free liquids (IDC 331). Portland cement was added to the filters to neutralize the acid and absorb any moisture present. This waste may also include the remaining material after processing of filter media (IDC 338) to recover the plutonium.⁽⁴⁾

IDC 490, HEPA Filters (24 x 24), Not Acid Contaminated: HEPA filters (24 x 24), not acid contaminated, are large HEPA filters used in the filter plenums of all plutonium processing buildings to filter room and glovebox air. The materials of construction for these filters are the same as IDC 335.⁽⁴⁾

IDC 491, Pre-Filters: This waste consists of a variety of plenum pre-filters used in ventilation systems that filter the room and glovebox air. These filters range from furnace-type filters to pleated fiberglass filters. The filter medium consists of fiberglass packing or paper. Wire mesh may have been used to hold the media in place. The frame material for these filters is cardboard.⁽⁴⁾

IDC 492, HEPA Filters (24 x 24), Acid Contaminated: HEPA filters (24 x 24), acid contaminated, are large HEPA filters used in the filter plenums of buildings that contain gloveboxes with atmospheres that could cause the filters to be contaminated with acids or bases used in chemical processing. The materials of construction for these filters are the same as IDC 335.⁽⁴⁾

6.10.3 Areas of Operation

TRU filter debris is generated by the following defense operations.⁽³⁾

- Plutonium Production
- Plutonium Recovery
- Laboratory Operations
- Waste Treatment
- Research and Development
- Maintenance
- Residue Repackaging and Treatment
- Decontamination and Decommissioning Operations

6.10.4 Generation Processes

Filter debris is generated by nearly every operation on site. Table 6-32 provides the title of each generating process along with the corresponding WSRIC building and process number. A description of each of these processes, process flow diagrams, and details of each filter debris waste stream can be found in the *WSRIC Building Books* or *archived WSRIC files*.

Table 6-32, Filter Debris Waste Generating Processes

Building	Process	Title
<i>Building 371</i>		
371	1	DCHP Preparation
371	2	Caustic Treatment
371	3	Repack Operations
371	4	Analytical Lab
371	5	Chemical Standards Laboratory
371	6	Prove Vacuum System
371	15	General Waste (RMMA)
371	16	Caustic Treatment (New)
371	18	Heating, Ventilation, & Air Conditioning
371	19	Caustic Waste Treatment System
371	20	Organic Contaminated Residue Treatment
371	21	Nitrate Contaminated Residue Treatment
371	22	Beryllium Parts Cleaning
371	23	Salt Residues Repack Project
371	24	Box N Go Project
371	25	Sand Slag & Crucible-Residue Repack Project
371	27	Dry Residue Repack

Building	Process	Title
371	28	Ash Residue Repack
<i>Building 374</i>		
374	1	Acid Neutralization
374	2	Radioactive Decontamination
374	3	Sludge Solidification
374	6	General Building Operations
<i>Building 442</i>		
442	2	Air Filter Replacement
<i>Building 559</i>		
559	2	Dynamic Analysis
559	3	X-Ray Methods
559	4	Infrared Analysis
559	5	GC/MS Environmental Samples/RCRA Waste
559	6	Thermal Analysis
559	7	Emissions Spectroscopy
559	8	Miscellaneous Analyses
559	9	Isotopic Analysis
559	11	Nondestructive Analysis
559	12	Uranium Analysis
559	13	Gallium Analysis
559	14	Plutonium Assay
559	15	Carbon Analysis
559	16	Raschig Ring Analysis
559	17	Coulometric Titration
559	18	Iron & Silicon Nonroutine
559	19	Nonroutine Ion Chromatograph
559	20	Nonroutine Plutonium Oxide
559	21	Assay Of Uranium By Auto Titration
559	22	Specific Ion Electrode
559	23	Sample Receiving
559	24	Sample Break In And Sample Cutting
559	26	Utilities
559	29	Atomic Absorption
559	30	General Waste
559	31	Extractions
559	34	GC Analysis—Production Support
559	35	Total Metals Digestion
559	36	Toxicity Characteristic Leaching Procedure
559	37	Analysis Of Sulfides/Aqueous Solutions
559	38	Total And Amenable Cyanide Analysis
559	39	Analysis For Reactive Sulfides
559	40	Analysis For Reactive Cyanide
559	41	Sulfide Analysis
559	42	Cyanide Analysis
<i>Building 561</i>		
561	1	Filter Plenum Building (Building 559)

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Building	Process	Title
<i>Building 707</i>		
707	1	Module A
707	2	Module K/X-Y Retriever
707	3	Module J
707	4	Rolling/Forming, Module B
707	6	Machining—Module A
707	7	Machining—Module C
707	9	Machining—Module G
707	13	Grit Blasting
707	16	Assembly – Superdry
707	19	Radiography
707	20	Inspection
707	21	Testing – Module H
707	26	Calibration Lab – Module D
707	29	Utilities
707	35	Module B Through H
707	36	Deactivation/Decon/Decommissioning (D ³)
707	38	HEPA Filter Media Testing
707	39	Salt Stabilization
707	41	Dry Residue Repack
707	42	Ash Residue Stabilization/Repack
707	44	D&D (Sets 12 – 17)
<i>Building 771</i>		
771	1	High-Level Dissolution
771	2	Low-Level Dissolution
771	4	Anion Exchange
771	5	Feed Evaporation
771	6	Precipitation Feed Batching
771	9	Calcination
771	10	Hydrofluorination
771	11	Reduction And Button Breakout
771	12	Miscellaneous Residue Processing
771	13	Metal Burning
771	14	Crushing And Grinding
771	16	Oralloy Leach
771	17	Oralloy (OY) Precipitation
771	18	Special Recovery Anion Exchange
771	19	Caustic Filtration
771	20	Fume Scrubber
771	21	Vacuum Systems
771	23	Radioactive Inorganic Laboratory
771	24	Chemical Standards Laboratory
771	25	Chemical Technology
771	26	Plutonium Metallurgy
771	27	Plenums
771	35	General Building Waste (RMMA)
771	36	H-4 Support Vacuum Systems
771	39	Solution Processing & Pipe Removal
771	40	Set 34, Decontamination & Decommissioning

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Building	Process	Title
771	41	Set 37, Decontamination & Decommissioning
771	42	Set 40, Decontamination & Decommissioning
771	43	Set 44, Decontamination & Decommissioning
771	44	Set 17, Decontamination & Decommissioning
771	45	Set 38A, Decontamination & Decommissioning
771	46	Set 38B, Decontamination & Decommissioning
771	47	Set 38C, Decontamination & Decommissioning
771	48	Set 38D, Decontamination & Decommissioning
771	49	Set 39, Decontamination & Decommissioning
771	50	Set 41, Decontamination & Decommissioning
771	51	Set 50, Decontamination & Decommissioning
771	52	Set 07, Decontamination & Decommissioning
771	53	Set 25, Decontamination & Decommissioning
771	54	Set 27, Decontamination & Decommissioning
771	55	Set 35, Decontamination & Decommissioning
771	56	Set 46, Decontamination & Decommissioning
771	57	Set 28, Decontamination & Decommissioning
771	58	Set 12, Decontamination & Decommissioning
771	59	Set 26, Decontamination & Decommissioning
771	60	Set 36A, Decontamination & Decommissioning
771	61	Set 42, Decontamination & Decommissioning
771	62	Support, Decontamination & Decommissioning
771	63	Waste Drum & Crate Repackaging Operation
<i>Building 774</i>		
774	1	Neutralization
774	2	Basic Liquid Waste: First Stage
774	3	Basic Liquid Waste: Second Stage
774	4	Precipitation/Filtration
774	9	Miscellaneous Waste Handling
<i>Building 776/777</i>		
776	1	Pyrochemical Processing
776	2	Size Reduction
776	3	Advanced Size Reduction Facility
776	4	Low-Level Waste Compactor/Baler
776	6	Utilities
776	13	Supercompactor
777	1	Special Weapons Projects
777	2	Disassembly
777	6	Super Dry
777	8	Density Balance
777	10	Radiography
777	13	Nuclear Assembly Technology
777	15	Calibration Laboratory
777	16	Coatings Laboratory
777	17	Tritium Surveillance Laboratory
777	20	Joining Pigma Welder
777	21	Joining CO ₂ Laser
776_777	1	Advanced Size Reduction Facility
776_777	5	Supercompactor

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Building	Process	Title
776_777	6	General Building Waste
776_777	12	Waste Repackaging
<i>Building 779</i>		
779	2	Generic Residue Treatment Process Wastes
779	8	RTT—Salt Recycle
779	9	Hydride-Hydride And Metal
779	10	Hydride-Hydride/Oxide
779	11	Hydride—Acid Leach
779	12	Hydride—Acid Boil Down (Calcining)
779	14	Physical Metallurgy
779	16	RTT—Plutonium Oxide Dissolution
779	17	RTT—Peroxide Precipitation
779	18	RTT—Residue Recovery Extraction
779	21	RTT—Ion Exchange Resin Project
779	23	Pu Tech-Gas-Solid Kinetic Studies
779	24	Pu Tech—Nuclear Material Comp. Studies
779	25	Nondestructive Lab Testing & Metal Study
779	26	Surface Analysis Laboratory
779	27	Pu Tech-Microbalance Pu Reaction Studies
779	28	Utilities
779	37	D&D Programs
779	40	Decontamination And Decommissioning
779	42	Decontamination and Decommissioning Activities
779	43	Decontamination and Decommissioning Activities

6.10.5 RCRA Characterization

Table 6-33 presents the chemical constituent codes (CCCs) and EPA Hazardous Waste Numbers associated with the BWR Subpopulations and WSRIC Waste Streams assigned to TRU filter debris waste containers. Supporting characterization information is provided in the *BWR Baseline Book*, *WSRIC Building Book*, and *WSRIC archived files*.

Table 6-33, Filter Debris Waste RCRA Characterization

IDC	BWR Subpopulation	WSRIC Waste Stream	RCRA CCCs	Non-RCRA CCCs	EPA Hazardous Waste Numbers
<i>Ful-Flo Filters, Not From Incinerator</i>					
0331		371 - 19 - 16	00	?? ¹	None
0331		371 - 19 - 17	00	?? ¹	None
0331		371 - 19 - 18	00	?? ¹	None
0331		371 - 21 - 23	00	00	None
0331		707 - 35 - 4	00	32	None
0331		707 - 36 - 5	00	32	None
0331		771 - 36 - 9	00	0205	None
0331		771 - 39 - 1	00	00	None
0331		771 - 41 - 0	N/A ²	N/A ²	N/A ²
0331		771 - 44 - 0	N/A ²	N/A ²	N/A ²
0331		771 - 56 - 0	N/A ²	N/A ²	N/A ²
0331		771 - 57 - 0	N/A ²	N/A ²	N/A ²
0331		771 - 62 - 0	N/A ²	N/A ²	N/A ²
0331		771 - 63 - 25	00	02	None
0331		776_777 - 6 - 206	00	32	None
0331		779 - 40 - 5	00	32	None
0331		779 - 42 - 0	N/A ²	N/A ²	N/A ²
0331		779 - 43 - 0	N/A ²	N/A ²	N/A ²
0331		D&D - 3 - 34	00	** ¹	None
0331		D&D - 3 - 52	00	** ¹	None
0331	54BF		00	00	None
0331	54BL		00	0205	None
0331	54BN		00	02	None
<i>Absolute Drybox Filters, Not Acid Contaminated</i>					
0335		371 - 15 - 22	00	00	None
0335		371 - 20 - 14	00	70	None
0335		371 - 20 - 6	00	00	None
0335		371 - 21 - 10	00	00	None
0335		371 - 21 - 13	00	70	None
0335		371 - 22 - 6	00	07	None
0335		371 - 23 - 13	00	00	None
0335		371 - 24 - 8	00	00	None
0335		371 - 25 - 3	00	00	None
0335		371 - 27 - 19	00	00	None
0335		371 - 28 - 3	00	00	None
0335		374 - 1 - 8	00	00	None
0335		374 - 2 - 10	00	00	None
0335		374 - 3 - 11A ³	00	00	None
0335		559 - 4 - 15	00	00	None

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IDC	BWR Subpopulation	WSRIC Waste Stream	RCRA CCCs	Non-RCRA CCCs	EPA Hazardous Waste Numbers
0335		559 - 5 - 12	00	00	None
0335		559 - 6 - 11	00	00	None
0335		559 - 7 - 9	00	00	None
0335		559 - 8 - 11	00	00	None
0335		559 - 16 - 10	00	00	None
0335		559 - 23 - 5	00	00	None
0335		559 - 24 - 11	00	00	None
0335		559 - 30 - 48	00	00	None
0335		559 - 31 - 9	00	00	None
0335		559 - 41 - 16	00	00	None
0335		707 - 1 - 44	00	00	None
0335		707 - 1 - 74	00	00	None
0335		707 - 2 - 30	00	00	None
0335		707 - 3 - 43	00	00	None
0335		707 - 29 - 11	00	00	None
0335		707 - 35 - 8	00	00	None
0335		707 - 36 - 8	00	00	None
0335		707 - 39 - 13	00	00	None
0335		707 - 41 - 20	00	00	None
0335		707 - 42 - 3	00	00	None
0335		771 - 14 - 4	00	00	None
0335		771 - 23 - 5	00	02	None
0335		771 - 35 - 36	00	00	None
0335		771 - 40 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 41 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 42 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 43 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 44 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 45 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 46 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 47 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 48 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 49 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 50 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 51 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 52 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 53 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 54 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 55 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 56 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 57 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 58 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 59 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 60 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 61 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 62 - 0	N/A ²	N/A ²	N/A ²
0335		771 - 63 - 5	00	00	None
0335		774 - 2 - 10	00	05	None
0335		774 - 3 - 10	00	00	None
0335		774 - 4 - 10	00	05	None
0335		774 - 9 - 1	00	00	None

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IDC	BWR Subpopulation	WSRIC Waste Stream	RCRA CCCs	Non-RCRA CCCs	EPA Hazardous Waste Numbers
0335		776_777 - 1 - 9	00	00	None
0335		776_777 - 5 - 1	00	00	None
0335		776_777 - 6 - 57	00	00	None
0335		776_777 - 6 - 146	00	07	None
0335		779 - 2 - 4	00	00	None
0335		779 - 28 - 4	00	00	None
0335		779 - 40 - 84	00	00	None
0337		779 - 42 - 0	N/A ²	N/A ²	N/A ²
0337		779 - 43 - 0	N/A ²	N/A ²	N/A ²
0335		D&D - 3 - 32	00	00	None
0335	54CA		00	00	None
0335	54CD		00	00	None
<i>HEPA Filter Media</i>					
0338		371 - 20 - 12	00	00	None
0338		371 - 20 - 17	00	70	None
0338		371 - 21 - 19	00	70	None
0338		371 - 21 - 20	00	00	None
0338		707 - 38 - 4	00	00	None
0338		771 - 52 - 0	N/A ²	N/A ²	N/A ²
0338	54DA		00	00	None
0338	54DE		00	70	None
<i>Absolute Drybox Filters Acid Contaminated</i>					
0342		371 - 15 - 23	00	02	None
0342		559 - 3 - 13	00	02	None
0342		559 - 9 - 14	00	02	None
0342		559 - 21 - 8	00	02	None
0342		559 - 29 - 12	00	00	None
0342		559 - 42 - 11	00	02	None
0342		771 - 1 - 8	00	00	None
0342		771 - 9 - 5	02	00	None
0342		771 - 12 - 7	00	02	None
0342		771 - 16 - 5	00	00	None
0342		771 - 24 - 5	00	02	None
0342		771 - 36 - 3	00	0205	None
0342		771 - 39 - 2	00	02	None
0342		771 - 41 - 0	N/A ²	N/A ²	N/A ²
0342		771 - 50 - 0	N/A ²	N/A ²	N/A ²
0342		771 - 51 - 0	N/A ²	N/A ²	N/A ²
0342		771 - 52 - 0	N/A ²	N/A ²	N/A ²
0342		771 - 61 - 0	N/A ²	N/A ²	N/A ²
0342		771 - 63 - 8	00	02	None
0342	54EA		00	02	None
0342	54EC		00	02	None
<i>Processed Filter Media</i>					
0376		371 - 21 - 25	00	00	None
0376	54FA		00	00	None
<i>HEPA Filters (24"x24") Nonacid Contaminated</i>					
0490		371 - 18 - 10	00	00	None
0490		371 - 22 - 2	00	07	None
0490		374 - 6 - 27	00	00	None

IDC	BWR Subpopulation	WSRIC Waste Stream	RCRA CCCs	Non-RCRA CCCs	EPA Hazardous Waste Numbers
0490		559 - 26 - 12	00	00	None
0490		561 - 1 - 1	00	00	None
0490		707 - 29 - 4	00	00	None
0490		707 - 36 - 60	00	07	None
0490		771 - 27 - 5	00	00	None
0490		771 - 63 - 16	00	00	None
0490		776_777 - 1 - 14	00	00	None
0490		776_777 - 6 - 171	00	07	None
0490		776_777 - 12 - 17	00	00	None
0490		779 - 28 - 5	00	00	None
0490		D&D - 3 - 95	00	00	None
0490	54GA				
<i>Pre-Filters</i>					
0491		371 - 15 - 73	00	00	None
0491		374 - 6 - 28	00	00	None
0491		559 - 26 - 18	00	00	None
0491		559 - 26 - 29	00	00	None
0491		561 - 1 - 2	00	00	None
0491		561 - 1 - 3	00	00	None
0491		707 - 3 - 46	00	00	None
0491		707 - 29 - 5	00	00	None
0491		707 - 29 - 12	00	00	None
0491		707 - 35 - 21	00	00	None
0491		707 - 36 - 61	00	07	None
0491		771 - 63 - 17	00	00	None
0491		776 - 6 - 6	00	00	None
0491		776_777 - 6 - 89	00	00	None
0491		776_777 - 6 - 178	00	07	None
0491		779 - 40 - 19	00	00	None
0491		779 - 40 - 161	00	00	None
0491		779 - 42 - 0	N/A ²	N/A ²	N/A ²
0491		779 - 43 - 0	N/A ²	N/A ²	N/A ²
0491		D&D - 3 - 31	00	00	None
0491	54HA		00	00	None
<i>HEPA Filters (24"x24") Acid Contaminated</i>					
0492		771 - 27 - 6	00	02	None
0492	54IA		00	02	None

Notes:

1. The constituents in this waste stream vary and are determined on a case-by-case basis. The "??" or "***" is replaced by the actual chemical constituent code on the Waste/Residue Traveler.
2. WSRIC waste streams with an output number of "0" refer to a D&D process, which does not include specific outputs. The specific outputs associated with the D&D process are identified by a D&D WSRIC waste stream that is also assigned to the waste.
3. This WSRIC waste stream has been revised as indicated by the alpha character suffix. The characterization of the revised waste stream supercedes the previous characterization and therefore is also applicable to waste generated prior to the revision. The alpha character will be applied to individual waste packages generated since the revision; however, it will not be assigned to individual waste packages generated before the revision.

6.10.6 Radionuclides

Table-6-34 presents the radionuclides potentially present in TRU filter debris waste. ⁽³⁾

Table 6-34, Filter Debris Waste Radionuclides

IDC	Radionuclides ¹
331	WG Pu, Am-241, DU, EU, Np-237, U-233
335	WG Pu, Am-241, DU, EU, Np-237, U-233
338	WG Pu, Am-241, DU, EU, Np-237, U-233
342	WG Pu, Am-241, DU, EU, Np-237, U-233
376	WG Pu, Am-241, DU, EU, Np-237, U-233
490	WG Pu, Am-241, DU, EU, Np-237, U-233
491	WG Pu, Am-241, DU, EU, Np-237, U-233
492	WG Pu, Am-241, DU, EU, Np-237, U-233

Key: WG Pu weapons-grade plutonium EU enriched uranium
 Am-241 americium-241 Np-237 neptunium-237
 DU depleted uranium U-233 uranium-233

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 is not indicated if it is expected to be present only due to plutonium-241 decay.

6.10.7 References

1. DOE 1999. TRUPACT-II Content Codes (TRUCON), Revision 12. DOE/WIPP 89-004.
2. DOE 1995. Transuranic Waste Baseline Inventory Report, Revision 2. DOE/CAO-95-1121.
3. RFETS 2000. RFETS TRU Waste Acceptable Knowledge Supplemental Information. RF/RMRS-97-018, Revision 8.
4. RFETS 2001. Backlog Waste Reassessment Baseline Book, Waste Form 54, Filters and Filter Waste.
5. Waste and Environmental Management System (WEMS) database.
6. WASTREN 2001. Interoffice Memorandum from Jeff Harrison to Waste Records Center. JLH-009-2001. April 30.
7. WASTREN 2000. Interoffice Memorandum from Jeff Harrison to Vivian Sendelweck. JLH-016-2000. August 11.