



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

FEB 16 2005

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 RF117.01, TRM Grit

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) RF117.01, TRM Grit.

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, 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
- WIPP Operating Record
- CBFO M&RC

*ED denotes Electronic Distribution



Waste Stream Profile Number: RF117.01

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 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, 2004

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, Version 10, August 2004.

Transuranic (TRU) Waste Management Manual, 1-MAN-008-WM-001, Version 9, January 2004. Contact-Handled

Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant, Revision 2.0, November 2004.

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-MT-0372

Summary Category Group: S5000⁽²⁾ Waste Matrix Code Group: Inorganic Nonmetal Waste⁽²⁾

Waste Stream Name: TRM Grit (D007)⁽²⁾

Description from the WTWBIR: This waste consists of grit from grit blasting surface cleaning and parts serializing operations.⁽²⁾

Defense TRU Waste: Yes No

Check one: CH RH Number of SWBs N/A Number of Drums 9 Number of Canisters N/A

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

List applicable EPA Hazardous Waste Codes⁽³⁾: D007

Applicable TRUCON Content Codes: RF122A/222A, RF122B/222B, RF122D/222D, RF122E/222E, RF122F/222F, RF122H/222H, RF122I/222I, RF122N/222N, RF122T/222T

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

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, 15
- Visual Examination: Reference List, Nos. 16, 17, 18
- Headspace Gas Analysis
 - VOCs: Reference List, No. 7, 11, 12
 - Flammable: Reference List, No. 7, 11, 12
 - 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.

G. A. O'Leary
Signature of Site Project Manager

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

2/8/05
Date

C. L. Ferrera
Signature of Site QA Officer

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

2/8/05
Date

- NOTE**
- (1) Use back of sheet or continuation sheets, if required.
 - (2) The Waste Matrix Code Group, Summary Category Group, Waste Stream Name, and Description in the WTWBIR are incorrect. The waste material is not a homogeneous solids sludge material. The waste stream actually consists of grit blasting media used for plutonium parts cleaning and serialization that meets the definition of debris (manufactured object and is not S3000 or S4000 material), and is composed of inorganic ceramic material (glass or ceramic beads). The Waste Stream Name, Description from the WTWBIR, Summary Category Group, Waste Matrix Code Group, and Waste Matrix Code are based on the acceptable knowledge for this waste stream (see attached Acceptable Knowledge Summary).
 - (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, December 2004.
2. Waste Stream and Residue Identification and Characterization (WSRIC), Version 7, December 2004, and archived versions.
3. RFETS TRU Waste Acceptable Knowledge Supplemental Information, RF/RMRS-97-018, Revision 15, December 2004.
4. Waste and Environmental Management System (WEMS) database.
5. Transuranic (TRU) Waste Certification, PRO-X05-WC-4018, Version 9, November 2004.
6. Acceptable Knowledge TRU/TRM Waste Stream Summaries, RMRS-WIPP-98-100, Section 7.44, Revision 0, January 2005.
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 Douglas K. Sullivan to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile RF117.01 Lot 1, DKS-001-05, January 2005.
11. Headspace Gas Sampling And Analysis Using An Automated Manifold, L-4231-F, March 2002
12. Headspace Gas Sampling and Analysis Using An On-Line Integrated System, PRO-1676-HGAS-S&A, Version 2, January 2004.
13. Real-Time Radiography Testing of Transuranic and Low-Level Waste, 4-W30-NDT-00664, Version 11, July 2004.
14. Real-Time Radiography Testing of Transuranic and Low-Level Waste in Building 569, 4-I19-NDT-00569, Revision 5, January 2002.
15. Mobile Real-Time Radiography Testing of Transuranic and Low-Level Waste, PRO-1520-Mobile-RTR, Version 5, October 2004.
16. Glovebox and C-Cell Waste Operations, PRO-1358-440-VERP, Version 7, July 2004.
17. RTR Visual Examination Confirmation, Building 371, PRO-1608-VECRTR-371, Revision 0, October 2002.
18. Visual Examination for Confirmation of RTR, 4-H80-776-ASRF-007, Revision 5, June 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 # RF117.01

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	✓	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

2/8/05
Date

Data Summary Report—Table 2: Headspace Gas Summary Data

WSPF # RF117.01

Sampling and Analysis Method (check one):

100% Sampling

Reduced Sampling

2A

ANALYTE ^a	# Samples ^b	Transform Applied ^c	Normality Test (Pass/Fail) ^d	Maximum (ppmv) ^l	Mean ^d	Std. Dev. ^d	UCL ₉₀ ^d	Transformed RTL ^e	Un-Transformed RTL ^e (ppmV)	EPA Code ^f
1,1-Dichloroethane	0			2.5	1.167				10	
1,2-Dichloroethane	0			2.4	1.133				10	
1,1-Dichloroethylene	0			3.2	1.428				10	
cis-1,2-Dichloroethylene	0			3.2	1.417				10	
trans-1,2-Dichloroethylene	0			2.5	1.150				10	
1,1,1,2-Tetrachloroethane	0			3.4	1.533				10	
1,1,1-Trichloroethane	2	Log	Fail ^g	6.3	0.534	0.598	0.813	2.303	10	
1,1,2-Trichloro-1,2,2-Trifluoroethane	0			2.6	1.200				10	
1,2,4-Trimethylbenzene	1	Log	Fail ^g	4	0.286	0.416	0.480	NA	NA	
1,3,5-Trimethylbenzene	0			2.9	1.300				NA	
Acetone	1	Log	Fail ^g	38	2.874	0.346	3.035	4.605	100	
Benzene	1	Log	Fail ^g	2.8	0.243	0.400	0.429	2.303	10	
Bromoform	0			2.3	1.078				10	
Butanol	0			33	15.167				100	
Carbon disulfide	0			3.6	1.617				10	
Carbon tetrachloride	1	Log	Fail ^g	8.9	0.480	0.683	0.798	2.303	10	
Chlorobenzene	0			2.8	1.306				10	
Chloroform	0			2.5	1.183				10	
Cyclohexane	0			3.4	1.489				NA	
Ethyl benzene	0			2.2	1.044				10	
Ethyl ether	0			3.5	1.494				10	
Methanol	0			30	13.833				100	
Methyl ethyl ketone	0			34	15.611				100	
Methyl isobutyl ketone	0			28	12.667				100	
Methylene chloride	0			3.0	1.333				10	
o-Xylene	0			2.6	1.228				10	
m,p-Xylene	0			4.9	2.311				10	
Tetrachloroethylene	0			2.5	1.194				10	
Toluene	7	Log	Pass	15	1.421	0.972	1.874	4.277	72.02 ^h	
Trichloroethylene	0			2.4	1.133				10	

NOTES:

- ^a A total of 9 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, standard deviation, 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 WIPP WAP target analytes. "NA" means the analyte is not a WIPP WAP target analyte, but instead a flammable VOC that is analyzed for compliance with the Contact-Handled Transuranic Waste Authorized Methods for Payload Control (CH-TRAMPAC).
- ^f No entry indicates that the respective UCL_{90} value did not exceed the associated RTL.
- ^g 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.
- ^h Limit used for evaluation of EPA Hazardous Waste Code for toluene (Reference No. 3).
- ⁱ Maximum value represents the largest value reported for the analyte in the data set and includes reported MDL values for samples in which data is reported as less-than-detectable. For analytes with no detectable concentrations reported, the maximum value corresponds to the maximum reported MDL value.

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

WSPF # RF117.01

2B

TENTATIVELY IDENTIFIED COMPOUND (TIC)	Maximum Observed Estimated Concentrations (ppmV)	# Samples Containing TIC
No TIC listed in 40 CFR 261, Appendix VIII was detected in any of the 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 # RF117.01**

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 waste
- Wastes with polychlorinated biphenyls (PCBs) not authorized under an EPA PCB waste disposal authorization

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 # RF117.01

Package No.	Radioassay Data Package	Headspace Sample Batch No.	Headspace VOC Data Package	RTR Data Package ^a	VE or VV Data Package ^b
D38135	440IP1-DP-080204	04W0332	HGAS-DP-01047	6T-2195	
D64459	440IP1-DP-031704	04W0148	HGAS-DP-00864	6R-059	
D71126	440IP1-DP-080503	04W0146	HGAS-DP-00862	6T-2171	
DB6961	CPN-01-021	04W0089	HGAS-DP-00807	6T1802	
DB7616	569IP1-DP-021402	04W0091	HGAS-DP-00809	5T-0288	
DB9098	569IP1-DP-051302	04W0120	HGAS-DP-00837	5T-0301	
DC2483	569IP1-DP-082801	04W0093	HGAS-DP-00811	5T-0232	
DD3381	440IP1-DP-030504	04W0098	HGAS-DP-00815		AR-DP-084
DE4469	440IP1-DP-121404	04W0137	HGAS-DP-00853	6T-1908	

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 or did not undergo VV at the time of waste packaging using the VE technique.

Acceptable Knowledge Summary

WSPF # RF117.01

RMRS-WIPP-98-100, Acceptable Knowledge TRU/TRM Waste Stream Summaries, Section 7.44, TRM Grit (D007) (attached).



Rocky Flats Environmental Technology Site

ACCEPTABLE KNOWLEDGE INFORMATION

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

RMRS-WIPP-98-100

Section 7.44

TRM Grit (D007)

Profile No. RF117.01

Revision 0

Reviewed for Classification/UCNI

By: Unclassified Not UCNI

Reference Exemption Number CEX-032-00

Date: February 3, 2005

7.44 TRM Grit (D007)

Profile No. RF117.01

Acceptable Knowledge (AK) Waste Stream Summary

Waste Stream Name: TRM Grit (D007)

Generation Buildings: Buildings 371, 440, 776/777^(1,6)

Waste Stream Volume (Retrievably Stored): 9 55-gallon drums^(1,6)

NOTE: Waste stream includes retrievably stored waste repackaged in Buildings 371 and 440.

Generation Dates (Retrievably Stored): July 1987 - December 2004^(1,6)

NOTE: Dates include repack dates.

Waste Stream Volume (Newly Generated): None^(1,6)

Generation Dates (Newly Generated): N/A

Waste Stream Volume (Projected): None⁽¹⁾

Generation Dates (Projected): N/A

TRUCON Content Code⁽²⁾: RF122A/222A, RF122B/222B, RF122D/222D, RF122E/222E,
RF122F/222F, RF122H/222H, RF122I/222I, RF122N/222N, RF122T/222T

Process Knowledge Demonstrates Flammable VOCs in Headspace < 500 ppm: No (see Section 7.44.6)

7.44.1 Transuranic Waste Baseline Inventory Report Information⁽³⁾

WIPP Identification Number(s): RF-MT-0372

Summary Category Group: S5000^{See Note}

Waste Matrix Code Group: Inorganic Nonmetal Waste^{See Note}

Waste Matrix Code: S5123^{See Note}

Waste Stream Name: TRM Grit (D007)^{See Note}

Description from the WTWBIR: This waste consists of grit from grit blasting surface cleaning
and parts serializing operations.^{See Note}

NOTE: The Waste Matrix Code Group, Summary Category Group, Waste Stream Name and Description in the Waste Isolation Pilot Plant (WIPP) Transuranic Waste Baseline Inventory Report (WTWBIR) are incorrect. The waste material is not a homogeneous solids sludge material. The waste stream actually consists of grit blasting media used for grit blasting surface cleaning and parts serialization that meet the definition of debris (manufactured object and is not S3000 or S4000 material) and is composed of inorganic material (glass or ceramic beads). The Waste Stream Name, Description from the WTWBIR, Summary Category Group, Waste Matrix Code Group, and Waste Matrix Code are based on AK for this waste stream (see Section 7.44.2).

7.44.2 Waste Stream Description

Transuranic Mixed (TRM) Grit assigned United States Environmental Protection Agency (EPA) hazardous waste number D007 consists of Grit Blasting Media [item description code (IDC) 372]. Grit blasting media consists of glass or ceramic beads ranging in size from sand to irregular particles. In accordance with Attachment B of the WAP, this waste stream is assigned Summary Category Group S5000 and Waste Matrix Code Group, Inorganic Nonmetal Waste. This waste stream may include grit with particle size less than 2.36 inches; however, Summary Category Group S5000 (debris waste) is still valid, because the waste material predominantly consists of manufactured objects (glass or ceramic beads) that are not particles of S3000 or S4000 material. This material was generated from grit blasting surface cleaning or part serialization operations at Rocky Flats Environmental Technology Site (RFETS); is similar in material, physical form, and hazardous constituents; and is therefore considered a single waste stream. Table 7.44-1 presents the Waste Matrix Code and waste material parameters for the TRM Grit waste stream. ⁽⁴⁾

Table 7.44-1, TRM Grit (D007)

IDC	IDC Description	Waste Matrix Code	Waste Material Parameters	Weight % (Average)
372	Grit	S5123, Ceramic/Brick Debris	Other Inorganic Materials	100%

NOTE: The above Waste Material Parameter addresses the waste material proper and does not include internal packaging (e.g., inner bags, inner cans), container packaging (e.g., fiberboard liner), secondary wastes, etc.

IDC 372, Grit: This material consists of grit from grit blasting surface cleaning or part serialization operations. Grit blasting media consists of glass or ceramic beads ranging in size from sand to irregular particles. ^(5,7,8,9,10)

7.44.3 Areas of Operation

TRM Grit assigned EPA Hazardous Waste Number D007 was generated by the following defense operations in Buildings 371, 440, and 776/777: ^(5,6,7,8,9,10)

- Plutonium production
- Plutonium recovery
- Waste repackaging
- Decontamination and decommissioning (D&D)

7.44.4 Generation Processes

TRM Grit assigned EPA hazardous waste number D007 was originally generated from grit blasting surface cleaning operations or part serialization operations in Buildings 371 and 776/777. Light metal components such as stainless steel, iron, aluminum, and chromium, as well as plutonium parts, were grit blasted to remove metal or carbon deposits or to etch serial numbers. Grit blasting media (grit) consists of glass or ceramic beads. Grit was contained in a reservoir within a glovebox from which it

would be forced, at high pressure, through the blasting tool to the surface of the metal component and back to the reservoir for continuous recycle. For parts serialization, a cardstock stencil was mounted on the part, and the part number etched with grit through the stencil. At some point, the grit would become too contaminated or too degraded for further reuse. The grit would then be removed and replaced. When grit blasting operations ended, grit was left in some of the grit blasting reservoirs until it was removed during D&D operations. ^(5,7,8,9,10)

Some of this waste stream was subsequently repackaged in Buildings 371 and 440 to correct original packaging deficiencies in order to meet WIPP Waste Acceptance Criteria (WAC). ^(7,8)

Process descriptions and flow diagrams can be found in the WSRIC Building Books. ^(7,8,9,10)

7.44.5. Resource Conservation and Recovery Act (RCRA) Characterization

This waste stream is characterized as a mixed waste. The specific Backlog Waste Reassessment (BWR) Baseline Book Subpopulations and Waste Stream and Residue Identification and Characterization (WSRIC) Process Numbers associated with TRM Grit assigned EPA Hazardous Waste Number D007 are listed in the Waste and Environmental Management System (WEMS) AK Waste Stream Summary for Profile Number RF117.01. ⁽⁶⁾

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. Therefore, this waste stream does not exhibit the characteristics of ignitability (D001), corrosivity (D002), or reactivity (D003).

RCRA-toxicity characteristic organic or F-listed solvents were not used in grit blasting operations, and the waste does not contain listed hazardous constituents. However, grit contains chromium (from grit blasting stainless steel and/or chromium parts) is assumed to be above the regulatory threshold limit (RTL) based on process knowledge and one sample from Building 777. Therefore EPA hazardous waste number D007 is assigned to this waste stream by AK. ^(5,7,8,10)

Beryllium parts were used in the manufacture/assembly of weapons components, and residual beryllium contamination of plutonium parts may have occurred; therefore, TRM Grit may have been contaminated with particulate beryllium, and residual quantities of beryllium may be present in the waste stream. Any beryllium present (less than 1% by weight and less than 5 kilograms per drum) is a contaminant of the process and not an unused commercial chemical product and, therefore, is not a P015-listed waste. ^(4,7)

No discarded chemical products, off-specification species, chemical residues, and spill residues thereof [40 Code of Federal Regulations (CFR) 261.33] were included in this waste stream, and no hazardous waste from specific sources (40 CFR 261.32) was generated at the site. Therefore no K, U, or P listings have been applied to this waste stream. ^(4,5,7,8,9)

Headspace gas sampling and analysis of containers assigned to this waste stream by AK detected six volatile organic compounds (VOCs) (acetone, benzene, carbon tetrachloride, 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 upper confidence limit (UCL₉₀) of the mean concentration for none of the analytes was found to exceed its associated RTL. Therefore, the headspace data confirms the AK characterization that no characteristic volatile organic or F-listed solvent EPA codes are applicable. ⁽¹¹⁾

7.44.6 Transportation

The payload containers in the waste stream must also comply with the Contact-Handled Transuranic Waste Authorized Methods for Payload Control (CH-TRAMPAC) requirements. Flammable VOCs including acetone, benzene, toluene, and 1,2,4-trimethylbenzene were detected in the headspace gas for some of the payload containers. Knowledge of the process is not sufficient by itself to ensure that the flammable VOC headspace concentration in all payload containers is less than 500 parts per million by volume (ppmv). Consequently, each payload container in this waste stream requires headspace gas sampling to determine the concentration of flammable VOCs in the container headspace prior to shipping. ⁽¹¹⁾

Payload management will not be used for this waste stream.

7.44.7 Radionuclides

Table 7.44-2 summarizes the radionuclides that may be present in TRM Grit assigned EPA hazardous waste number D007. ⁽⁴⁾

Table 7.44-2, TRM Grit (D007) Radionuclides

IDC	Description	Radionuclides
372	Grit	WG Pu, Am-241, Am-243, EU, Np-237

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

7.44.8 References

1. Wastren 2005. Interoffice Memorandum from Scott Smith to Waste Records Center. Current and Projected Waste Volumes for TRM Grit (D007), Profile Number RF117.01, SMS-001-2005, January 18, 2005.
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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 15.
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 371, Version 7.0.
8. RFETS 2004. Waste Stream and Residue Identification and Characterization Building 440STOR, Version 7.0.
9. RFETS 1991. Waste Stream and Residue Identification and Characterization Building 777, Version 3.2.
10. RFETS 2004. Waste Stream and Residue Identification and Characterization Building 776/777, Version 7.0.
11. Interoffice Memorandum from Douglas K. Sullivan to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile RF117.01 Lot 1, DKS-001-05, January 11, 2005.