



Department of Energy
 Carlsbad Field Office
 P. O. Box 3090
 Carlsbad, New Mexico 88221
 January 27, 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 Change Notice #2 for RFETS WSPF Number RF029.01, TRU Heterogeneous Debris Waste

Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office (CBFO) has approved the Change Notice #2 for the Rocky Flats Environmental Technology Site (RFETS) Waste Stream Profile Form (WSPF) RF029.01, TRU Heterogeneous Debris Waste

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
 R. Reeves, WRES ED
 W. Ledford, CTAC ED
 CBFO M&RC

*ED Denotes Electronic Distribution



Update for WIPP Operating Record (Change Notice #2)

TRU Heterogeneous Debris Waste (RF029.01)

Please add the following information to the WIPP Operating Record for WSPF #RF029.01, Revision 0. This waste stream is TRU Heterogeneous Debris Waste was approved by DOE/CBFO on August 20, 2002. Please update related files as you deem appropriate.

The Waste Stream Profile Form (WSPF) is being revised. The WSPF components are bolded. The updates are:

1. **Title, version number and date of documents used for WAP Certification:**

Changed *Transuranic (TRU) Waste Management Manual*, 1-MAN-008-WM-001, from Version 5 dated May 2002 to Version 8 dated November 2004. Changed *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, from Revision 0 dated May 2002 to Revision 2.0 dated November 2004.

2. **Waste Stream Information:**

- **Number of Drums:** Changed to 59
- **Number of SWBs:** Changed to 2293
- **Applicable TRUCON Content Codes:** Add the following TRUCON codes: RF121J, RF121K, RF121W and RF130W.

3. **Data Summary Report – Table 6: Exclusion of Prohibited Items**

Deleted the following bullet from the list of prohibited items:

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

Added the following bullet to the list of prohibited items:

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

The Acceptable Knowledge (AK) Summary attachment to the WSPF is being revised. The AK Summary components are bolded. The updates are:

1. **Generation Buildings:** Added Building 561.

2. **Waste Stream Volume (Retrievably Stored):** Changed to 44 55-gallon drums and 132 SWB and revised dates to March 1987 through September 2001.

3. **Waste Stream Volume (Newly Generated):** Changed to 15 55-gallon drums and 2161 SWBs and revised dates to October 2001 through November 2004.

4. **Waste Stream Volume (Projected):** Changed to none.

5. **Areas of Operations:**

- Changed first sentence as follows and added reference 20 to the end of the paragraph:

TRU heterogeneous debris wastes are generated by the following defense operations in Buildings 371, 440, 559, 561, 707, 771, 774, 776, 777, 779, and 886.

6. Generation Processes:

- Changed first sentence as follows and added reference 20 to the end of the paragraph:
TRU heterogeneous debris wastes in inventory were generated primarily by D&D operations in Buildings 371, 559, 561, 707, 771, 774, 776/777, 779, and 886.

- Inserted the following as paragraph number 3.

Some of the containers assigned to this waste stream may be contaminated with polychlorinated biphenyls (PCBs). Specifically, paint manufactured before 1980 may contain 50 ppm or greater PCBs. Therefore, waste generated from processes associated with D&D activities generating debris waste with painted surfaces from buildings built prior to 1980 is characterized as PCB bulk product waste unless analysis demonstrates otherwise. In addition, a review was conducted to ensure that all previously generated containers of debris waste with painted surfaces from buildings built prior to 1980 were identified as PCB bulk product waste. As a result of these activities, one or more containers of painted debris waste identified as PCB bulk product waste are assigned to this waste stream.^(4,11,17,21)

7. RCRA Characterization:

- Added the following as the third sentence in the fourth paragraph.

Based on beryllium surface contamination data, the total weight of particulate beryllium in an individual drum or standard waste box of heterogeneous debris is less than 1 percent by weight and will not exceed 5 kilograms.

8. Transportation:

- Added the following as the second paragraph:

Payload management will not be used for this waste stream.

9. References:

- Changed Reference Number 3 as follows:

RFETS 2004. RFETS TRU Waste Acceptable Knowledge Supplemental Information. RF/RMRS-97-018, Revision 15.

- Changed Reference Number 17 as follows:

WASTREN 2004. Interoffice Memorandum from M. L. Johnson to Waste Records Center. Current and Projected Waste Volumes for TRU Heterogeneous Waste, Profile Number RF029.01, MLJ-097-2004, November 30, 2004.

- Added the following as Reference Number 20:

RFETS 2004. Waste Stream and Residue Identification and Characterization, Building 561, Version 7.0.

- Added the following as Reference Number 21:

WASTREN 2005. Interoffice Memorandum from M. L. Johnson to Waste Records Center, Review Conducted to Identify PCB Bulk Waste Containers, MLJ-012-2005, January 18, 2005.

Reason/Justification for Change:

The change concerning polychlorinated biphenyls (PCBs) is required to comply with the PCB requirement in the *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (CH-WAC)*, Revision 2.0 which became effective on November 15, 2004. These changes will allow shipment of PCB waste authorized by EPA. Specifically, PCB contaminated waste can be disposed of at WIPP if the waste meets the applicable waste acceptance criteria listed in Sections 3.2.5, 3.4.1 and 3.5.6 of the CH-WAC, Revision 2.0. One or more containers of PCB contaminated waste, in the form of PCB bulk product waste are being added to the subject waste stream. Specifically, these waste containers include waste with surface coatings containing PCBs on the heterogeneous debris materials in the waste stream. Other than the designation of this waste as PCB bulk product waste, the waste in these containers is the same as the waste in other containers in the waste stream – i.e., the PCB contaminated waste was generated by the same process as, and is similar in physical form and hazardous constituents (i.e., it is non-hazardous) to, all the other waste generated in the waste stream. The PCB waste containers were administratively controlled from shipment until approval of this change notice.

The changes to the volume estimates and generating buildings are needed to more accurately reflect the known increase in the waste generation volume (including the additional PCB bulk product waste) and to identify an additional generating location (i.e., Building 561) with respect to what was originally estimated. Two containers of TRU heterogeneous debris waste were generated from Building 561 during the D&D activities that included the physical isolation and removal of contaminated equipment and support systems. Building 561 is a support building for Building 559. The waste generated from Building 561 is generated from similar activities, is similar in material and physical form, and is nonhazardous; and is, therefore, appropriately part of this waste stream.

The change to add new TRUCON codes is for new packaging configurations. Specifically, these are for new TRUCON codes that were approved and incorporated into the CH-TRUCON document (DOE/WIPP 01-3194) after preparation and approval of the subject waste stream profile form.

The change to address the quantity of beryllium was made to address the requirements of Section 3.3.2 of CH-WAC, Revision 2.0.

The change to address payload management was made to document that the requirements of Appendix E of CH-WAC, Revision 2.0 do not apply to this waste stream.

All changes submitted in this change notice do not affect the assignment of Hazardous Waste Numbers and/or the Waste Matrix Code as identified in the previously approved Waste Stream Profile Form.

Update for WIPP Operating Record (WSPF RF029.01) certification:

I hereby certify that I have reviewed the information in this Update for WIPP Operating Record, 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, Manager TRU Programs
Printed Name and Title

1-19-05
Date



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

JUN 24 2004

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 Change Notice Number 1 for Rocky Flats
Environmental Technology Site Waste Stream Profile Form Number RF029.01
- TRU Heterogeneous Debris Waste

Dear Mr. Zappe:

The Carlsbad Field Office (CBFO) has approved the change notice number 1 for Rocky Flats Environmental Technology Site (RFETS), Waste Stream Profile Form RF029.01. 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,

A handwritten signature in black ink, appearing to read "Kerry W. Watson".

Kerry W. Watson
CBFO Assistant Manager
Office of National TRU Program

Enclosure

cc: w/o enclosure
J. Kieling, NMED
C. Walker, TechLaw
K. Jackson, WTS *ED
M. Strum, WTS *ED
D. Bignell, WRES *ED
R. Chavez, WRES *ED
L. Greene, WRES
S. Calvert, CTAC
CBFO M&RC

*ED denotes Electronic Distribution

CBFO:NTP:KWW:VW-04-1495:UFC:5822

Update for WIPP Operating Record (Change Notice #1)

TRU Heterogeneous Debris Waste (RF029.01)

Please add the following information to the WIPP Operating Record for WSPF #RF029.01, Revision 0. This waste stream is TRU Heterogeneous Debris Wastes and was approved by DOE/CBFO on August 20, 2002. Please update related files as you deem appropriate.

The Waste Stream Profile Form (WSPF) is being revised. The WSPF components are bolded. The updates are:

1. **Number of Drums:** Change to 51
2. **Number of SWBs:** Change to 1449

The Acceptable Knowledge (AK) Summary attachment to the WSPF is being revised. The AK Summary components are bolded. The updates are:

1. **Waste Stream Volume (Retrievably Stored):** Revised category to specify 37 55-gallon drums and 131 SWBs with dates of September 1987 – September 2001.
2. **Waste Stream Volume (Newly Generated):** Revised category to specify 13 55-gallon drums and 1290 SWBs with dates of October 2001 – May 2004.
3. **Waste Stream Volume (Projected):** Revised category to specify 1 55-gallon drum and 28 SWBs with dates of May 2004 – October 2004.

RCRA Characterization:

- Deleted Table 6.12-2 and changed first paragraph to read: This waste stream is NOT a mixed waste. The waste is generated from similar activities; is similar in material, physical form, and hazardous constituents; and is, therefore, considered a single waste stream. The specific BWR Baseline Book Subpopulations and WSRIC Process Numbers associated with the TRU Heterogeneous Debris waste stream are listed in the WEMS AK Waste Stream Summary for Profile Number RF029.01.⁽⁶⁾

Reason/Justification for Change:

The update to waste stream volume is needed to accurately identify the more extensive use of SWBs for actual and currently projected waste generation volumes.

Deleted Table 6.12-2 to comply with current procedural requirements for preparation of AK Summaries and to make the document compositionally consistent with current AK Summaries prepared for recently approved waste streams.

Update for WIPP Operating Record (WSPF RF029.01) certification:

I hereby certify that I have reviewed the information in this Update for WIPP Operating Record, 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, Manager TRU Programs
Printed Name and Title

6-22-04
Date



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

August 20, 2002

Mr. Steve Zappe
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 Waste Stream Profile Form for Rocky Flats
Environmental Technology Site, Waste Stream Profile Form Number
RF029.01-Heterogeneous Debris 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 RF029.01. 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) 361-0265.

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
P. Roush, WTS
L. Greene, WTS
S. Calvert, CTAC
CBFO Mailroom

0204725

AUG 20 2002

Waste Stream Profile Number: RF029.01Generator site name: RFETSTechnical contact: Eric D'AmicoGenerator site EPA ID: CO7890010526Phone number: (303) 966-5362Date of audit report approval by NMED: March 9, 2000 as amended February 7, 2001, June 5, 2001 and April 8, 2002

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, May 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: RF029.01⁽¹⁾Summary Category Group: S5000⁽³⁾ Waste Matrix Code Group: Heterogeneous Debris Waste⁽³⁾Waste Stream Name: TRU Heterogeneous Debris Waste⁽³⁾Description from the WTWBIR: Debris waste primarily from decommissioning and decontamination (D&D) activities⁽³⁾Defense TRU Waste: Yes NoCheck one: CH RH Number of SWBs 953 Number of Drums 60 Number of Canisters N/ABatch Data Report numbers supporting this waste stream characterization: See Table 7.List applicable EPA Hazardous Waste Codes⁽²⁾: NoneApplicable TRUCON Content Codes: IDC 3011: RF 121A, RF 121D, RF 121DF, RF 121DA, RF 121DAF,RF 121E, RF 121F, RF 121H, RF 121I, RF 121N, RF 121TIDC 3010: RF 130A, RF 130B, RF 130BA, RF 130D, RF 130DF, RF 130E, RF 130F, RF 130G, RF 130GF, RF 130H,RF 130I, RF 130J, RF 130K, RF 130N, RF 130P, RF 130PF, RF 130PA, RF 130PAF, RF 130Q, RF 130R, RF 130RF, RF 130S, RF 130SF, RF 130T, RF 130U, RF 130V, RF 130VF**Acceptable Knowledge Information⁽¹⁾****Required Program Information**

- Map of site: Reference List, No. 4
- Facility mission description: Reference List, No. 4
- Description of operations that generate waste: Reference List, Nos. 1, 2, 3, 4, 7
- Waste identification/categorization schemes: Reference List, Nos. 9, 10
- Types and quantities of waste generated: Reference List, Nos. 1, 2, 3, 4, 7
- Correlation of waste streams generated from the same building and process, as appropriate: Reference List, Nos. 1, 2, 3, 7
- Waste certification procedures: Reference List, No. 6

Required Waste Stream Information

- Area(s) and building(s) from which the waste stream was generated: Reference List, Nos. 1, 2, 3, 7
- Waste stream volume and time period of generation: Reference List, Nos. 5, 7
- Waste generating process description for each building: Reference List, Nos. 1, 2, 3, 7
- Process flow diagrams: Reference List, Nos. 1, 2, 3
- Material inputs or other information identifying chemical/radionuclide content and physical waste form: Reference List, Nos. 1, 2, 3, 4, 7
- Which Defense Activity generated the waste: (Check one) Reference List, No. 4
 - 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

Approved For Classification/UCNI

V S SENDELWICK

Date: 19 AUG 02 (1400)

OK PUBLIC

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. 16, 17
- Visual Examination: 12, 13, 14, 15
- Headspace Gas Analysis
 VOCs: Reference List No. 8, 18
 Flammable: Reference List No. 8, 18
 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

8/19/02
 Date

C. L. Ferrera
 Signature of Site QA Officer

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

8/19/02
 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 originates primarily from Decommissioning and Decontamination (D&D) activities and is not identified in the WTWBIR. The WIPP ID assigned corresponds to the Waste Stream Profile Number. The Summary Category Group, Waste Matrix Code Group and Description from the WTWBIR provided are based on acceptable knowledge.
 - (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 24, Metal, April 2002.
2. Backlog Waste Reassessment Baseline Book, Waste Form 25, Heavy Metal, July 2001
3. Waste Stream and Residue Identification and Characterization (WSRIC), Version 7, and archived versions.
4. RFETS TRU Waste Acceptable Knowledge Supplemental Information, RF/RMRS-97-018, Revision 9, June 2001.
5. Waste and Environmental Management System (WEMS) database.
6. Transuranic Waste Certification, PRO-X05-WC-4018, Revision 4, May 2002.
7. Acceptable Knowledge TRU/TRM Waste Stream Summaries, RMRS-WIPP-98-100, Section 6.12, Revision 1, June 2002.
8. GC/MS Determination of Volatile Organics Waste Characterization, L-4111-X, January 2002.
9. Waste Characterization, Generation, and Packaging, 1-PRO-079-WGI-001, Revision 4, May 2002.
10. Waste Characterization Program Manual, 1-MAN-036-EWQA-Section 1.6.1, Revision 2, September 2000.
11. 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 RF029.01 Lot 1, TRG-069-02, August 2002.
12. Visual Examination for Confirmation of RTR, 4-H80-776-ASRF-007, Revision 5, June 2001.
13. Combustible Residue Repackaging, PRO-823-REPACK-371, Revision 1, March 2001.
14. Residue Repack, Building 371, PRO-544-SALT REPACK-371, Revision 5, January 2002.
15. TRU/TRM Waste Visual Verification (V²) and Data Review, PRO-1031-WIPP-1112, Revision 0, September 2001.
16. Real-Time Radiography Testing of Transuranic and Low-Level Waste, 4-W30-NDT-00664, Revision 5, October 2001.
17. Real-Time Radiography Testing of Transuranic and Low-Level Waste in Building 569, 4-119-NDT-00569, Revision 6, January 2002.
18. Headspace Gas Sampling And Analysis Using An Automated Manifold, L-4231-F, March 2002.

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 # RF029.01

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 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., PRLs) 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

8-19-02
Date

Data Summary Report—Table 2: Headspace Gas Summary Data

WSPF # RF029.01

Sampling and Analysis Method (check one):

100% Sampling

Reduced Sampling

2A

ANALYTE ¹	# Samples ^b	Mean ^a (ppmv)	SD ^a (ppmv)	UCL ₉₀ ^a (ppmv)	RTL ^c (ppmv)	EPA Code ^e
1,1-Dichloroethane					NA	
1,2-Dichloroethane					10	
1,1-Dichloroethylene					10	
cis-1,2-Dichloroethylene					NA	
trans-1,2-Dichloroethylene					NA	
1,1,2,2-Tetrachloroethane					10	
1,1,1-Trichloroethane	5	1.11	2.66	1.62	10	
1,1,2-Trichloro-1,2,2-Trifluoroethane					10	
1,2,4-Trimethylbenzene	1	0.56	0.42	0.64	NA	
1,3,5-Trimethylbenzene	1	0.54	0.43	0.62	NA	
Acetone	14	11.57	25.97	16.61	100	
Benzene	2	0.42	0.25	0.47	10	
Bromoform					NA	
Butanol	2	6.90	12.13	9.26	100	
Carbon disulfide	3	0.36	0.22	0.41	10	
Carbon tetrachloride					10	
Chlorobenzene					10	
Chloroform					10	
Cyclohexane	2	0.43	0.43	0.52	NA	
Ethyl benzene	10	1.18	1.85	1.54	10	
Ethyl ether					10	
Methanol	20	18.0	26.2	23.08	100	
Methyl ethyl ketone	5	4.80	6.01	5.97	100	
Methyl isobutyl ketone	16	13.22	17.33	16.58	100	
Methylene chloride	2	0.44	0.27	0.49	10	
o-Xylene	13	1.62	2.63	2.13	10	
m,p-Xylene	20	4.63	7.12	6.02	10	
Tetrachloroethylene					10	
Toluene	38	10.6	12.8	13.08	72.02 ^d	
Trichloroethylene	1	0.42	0.23	0.47	10	

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

WSPF # RF029.01

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

Data as reported in Data Summary Report – Table 2 confirm acceptable knowledge that the waste stream is not a hazardous waste.

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 based on headspace analysis.
- ^b A total of 45 samples were collected and analyzed. Analysis was performed for all analytes identified unless otherwise noted. No entry indicates no detectable measurements available for statistics. Samples 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. 4).
- ^e Statistics based on using 1/2 MDL for less-than-detectable observations without data transformation.
- ^f Headspace sampling and analysis was conducted on a portion of the containers in this lot prior to the addition of (trans)-1,2-dichloroethylene to the target analyte list.

Data Summary Report—Table 6: Exclusion of Prohibited Items**WSPF # RF029.01**

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
- Non-mixed hazardous waste

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

WSPF # RF029.01

Package No. ^a	Radioassay Data Package	Headspace Sample Batch No.	Headspace VOC Data Package	RTR Data Package
D60580	CPN-99-011	00W0084	HVOC-DP-00355	6T-1696
D63729	CPN-99-011	00W0020	HVOC-DP-00295	6T-1661
D65108	CIQ-00-048	00W0077	HVOC-DP-00351	6T-1708
D66866	CPN-98-008	00C1102	HVOC-DP-00270	6T-1623
D68084	CIQ-00-049	00W0078	HVOC-DP-00349	6T-1711
D68731	CIQ-00-033	00W0055	HVOC-DP-00327	6T-1685
D69766	569IP1-DP-020802	01W0152	HVOC-DP-00481	5T-0287
D70313	CPN-98-006	00C1081	HVOC-DP-00250	6T-1616
D71358	CIQ-98-006	01W0219	HVOC-DP-00547	6T-2057
D71712	569IP1-DP-012502	01W0152	HVOC-DP-00481	5T-0282
D72831	569IP1-DP-012502	01W0151	HVOC-DP-00480	5T-0282
D75978	CIQ-00-011	00C1101	HVOC-DP-00270	6T-1620
D76453	569IP1-DP-012802	01W0150	HVOC-DP-00479	5T-0283
D76586	CIQ-00-052	00W0074	HVOC-DP-00346	6T-1704
D76588	569IP1-DP-012802	01W0221	HVOC-DP-00549	5T-0282
D77916	CIQ-98-005	00C1101	HVOC-DP-00269	6T-1617
D95788	CPN-99-014	00C1101	HVOC-DP-00270	6T-1624
D96058	CIQ-99-036	00C1101	HVOC-DP-00270	6T-1623
D96607	CIQ-00-015	00C1097	HVOC-DP-00264	6T-1642
D97437	CIQ-99-037	00C1092	HVOC-DP-00257	6T-1637
D99139	CIQ-99-035	00C1093	HVOC-DP-00259	6T-1636
D99351	569IP1-DP-021102	01W0194	HVOC-DP-00520	5T-0286
D99409	CIQ-00-018	00W0011	HVOC-DP-00285	6T-1615
DA6946	CIQ-01-051	01W0142	HVOC-DP-00471	6T-1619

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

WSPF # RF029.01

Package No. ^a	Radioassay Data Package	Headspace Sample Batch No.	Headspace VOC Data Package	RTR Data Package
S00609	440SH1-DP-012301	02W0045	HGAS-DP-00212	5T-0106
S00615	440SH1-DP-013101	02W0045	HGAS-DP-00212	5T-0105
S00624	440SH1-DP-100201	02W0042	HGAS-DP-00210	5T-0108
S00626	440SH1-DP-092601	02W0049	HGAS-DP-00213	5T-0107
S00631	440SH1-DP-012501	02W0045	HGAS-DP-00212	5T-0106
S00646	440SH1-DP-012401	02W0045	HGAS-DP-00212	5T-0106
S00664	440SH1-DP-100801	02W0038	HGAS-DP-00209	5T-0107
S00665	440SH1-DP-092601	02W0049	HGAS-DP-00213	5T-0108
S00666	440SH1-DP-092701	02W0049	HGAS-DP-00213	5T-0108
S00667	440SH1-DP-102401	02W0042	HGAS-DP-00210	5T-0107
S00670	440SH1-DP-062601	02W0042	HGAS-DP-00210	5T-0106
S00672	440SH1-DP-102401	02W0042	HGAS-DP-00210	5T-0106
S00673	440SH1-DP-100801	02W0043	HGAS-DP-00211	5T-0106
S00697	440SH1-DP-092601	02W0049	HGAS-DP-00213	5T-0108
S00702	440SH1-DP-092601	02W0049	HGAS-DP-00213	5T-0107
S00704	440SH1-DP-081301	02W0045	HGAS-DP-00212	5T-0108
S00717	440SH1-DP-100401	02W0043	HGAS-DP-00211	5T-0113
S00720	440SH1-DP-080701	02W0049	HGAS-DP-00213	5T-0128
S00722	440SH1-DP-101801	02W0043	HGAS-DP-00211	5T-0112
S00822	440SH1-DP-032502	02W0058	HGAS-DP-00200	5T-0199
S01046	440SH1-DP-032002	02W0058	HGAS-DP-00200	5T-0222

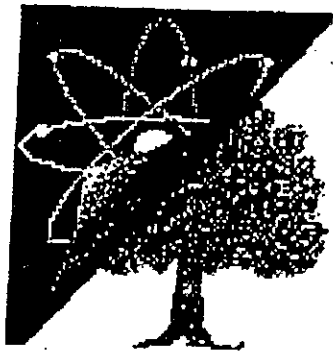
NOTES:

^a Radiography was performed on all of the containers identified here. All of the containers were candidates for visual examination for confirmation of radiography, however, none were selected.

Acceptable Knowledge Summary

WSPF # RF029.01

RMRS-WIPP-98-100, Acceptable Knowledge TRU/TRM Waste Stream Summaries, Section 6.12, TRU Heterogeneous Debris Waste (attached).



Rocky Flats Environmental Technology Site

ACCEPTABLE KNOWLEDGE INFORMATION

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

RMRS-WIPP-98-100

Section 6.12

TRU Heterogeneous Debris Waste

Profile No. RF029.01

Revision 3

Reviewed for Classification/UCNI

By: Unclassified Not UCNI

Reference Exemption Number CEX-032-00

Date: September 11, 2000

Approval signatures in Site Document Control history file

6.12 TRU Heterogeneous Debris Waste

Profile No. RF029.01

Acceptable Knowledge Waste Stream Summary

Waste Stream Name: TRU Heterogeneous Debris

Generation Buildings: Buildings 371, 440, 559, 707, 771, 774, 776, 777, 779, and 886^(6,8,9,17)

Waste Stream Volume (Retrievably Stored): 45 55-Gallon Drums and 140 Standard Waste Boxes^(6,17)

Generation Dates (Retrievably Stored): August 1987 – August 2001^(6,17)

Waste Stream Volume (Newly Generated): 1 55-Gallon Drum, 223 Standard Waste Boxes^(6,17)

Generation Dates (Newly Generated): October 2001 – April 2002^(6,17)

Waste Stream Volume (Projected): 14 55-Gallon Drums, 590 Standard Waste Boxes⁽¹⁸⁾

Generation Dates (Projected): April 2002 – June 2005⁽¹⁸⁾

TRUCON Content Codes⁽¹⁾:

IDC 3011: RF 121A, RF 121D, RF 121DF, RF 121DA, RF 121DAF, RF 121E, RF 121F, RF 121H, RF 121I, RF 121N, RF 121T

IDC 3010: RF 130A, RF 130B, RF 130BA, RF 130D, RF 130DF, RF 130E, RF 130F, RF 130G, RF 130GF, RF 130H, RF 130I, RF 130J, RF 130K, RF 130N, RF 130P, RF 130PF, RF 130PA, RF 130PAF, RF 130Q, RF 130R, RF 130RF, RF 130S, RF 130SF, RF 130T, RF 130U, RF 130V, RF 130VF

Process Knowledge Demonstrates Flammable VOCs in Headspace < 500 ppm: Yes (see Section 6.12.6)

6.12.1 Transuranic Waste Baseline Inventory Report Information⁽²⁾

WIPP Identification Numbers: N/A

Summary Category Group: N/A Waste Matrix Code Group: N/A

Waste Matrix Code: N/A Waste Stream Name: N/A

Description from the TWBIR: N/A

NOTE: IDCs 3010 and 3011 are newly created IDCs for D&D operations and thus are not identified in the TWBIR.

6.12.2 Waste Stream Description

TRU heterogeneous debris waste consists of composite debris with up to 10 percent organic matter (IDC 3010) and composite debris with greater than 10 percent organic matter (IDC 3011). These IDCs are generated by similar activities and are similar in material, physical form, and hazardous constituents, and therefore, are combined into a single waste stream. In accordance with Attachment B4 of the WAP, this waste stream is assigned Summary Category Group S5000 and Waste Matrix Code Group *Heterogeneous Debris Waste*. Table 6.12-1 lists the waste matrix codes and waste material parameters for TRU Heterogeneous Debris Waste.⁽⁹⁾

Table 6.12-1, TRU Heterogeneous Debris Waste Description

IDC	IDC Description	Waste Matrix Code	Waste Material Parameters	Weight % (Average)
3010	Composite Debris (1 to 10 percent organic)	S5420, Predominantly Inorganic Debris	Note 1	
3011	Composite Debris (>10 percent organic)	S5490, Unknown/Other Heterogeneous Debris	Note 1	

Notes:

1. Waste material parameters and weights will be determined during visual verification at the time of packaging or by RTR for retrievably stored waste, as appropriate.

IDC 3010, Composite Debris (1 to 10 percent organic): This IDC is assigned to composite debris, rubble, or material composed of such things as gloveboxes, process equipment (e.g., tanks, piping, pumps, furnaces, welders, hot plates, etc.) and other inorganic materials, such as concrete, glass, firebrick, ceramics, asbestos, etc. Metals in this IDC may include aluminum, copper, iron, brass, bronze, galvanized metal, stainless steel, carbon steel, tantalum, and other metal alloys. Waste items may be size reduced, packaged as waste, and include tools, containers, equipment and scrap metal. The materials contain up to 10 weight percent hydrogenous (organic) material such as cellulose, Plexiglas, rubber, small quantities of nonhazardous liquid (e.g., Texaco 650 oil) absorbed or solidified using Oil Dri or Nochar polymer, or other organic materials associated with the waste items.^(4,5,9,10,11,13,16)

IDC 3011, Composite Debris (>10 percent organic): This IDC is assigned to composite debris, rubble, or material composed of such things as gloveboxes, process equipment (e.g., tanks, piping, pumps, furnaces, welders, hot plates, etc.) and other inorganic materials, such as concrete, glass, firebrick, ceramics, asbestos, etc. Metals in this IDC may include aluminum, copper, iron, brass, bronze, galvanized metal, stainless steel, carbon steel, tantalum, and other metal alloys. Waste items may be size reduced, packaged as waste, and include tools, containers, equipment and scrap metal. This material typically contains greater than 10 weight percent hydrogenous (organic) material such as cellulose, plastic, Plexiglas, rubber, small quantities of nonhazardous liquid (e.g., Texaco 650 oil) absorbed or solidified using Oil Dri or Nochar polymer, or other organic materials associated with the waste items; however, there is no upper limit for the amount of hydrogenous material.^(4,5,8,9,10,11,13,16)

6.12.3 Areas of Operation

TRU heterogeneous debris wastes are generated by the following defense operations in Buildings 371, 440, 559, 707, 771, 774, 776, 777, 779, and 886.^(3,7,8,9,10,11,12,13,14,15)

- Plutonium Production
- Plutonium Recovery
- Laboratory Operations
- Maintenance
- Waste and Residue Repackaging
- Decontamination and Decommissioning (D&D)

6.12.4 Generation Processes

TRU heterogeneous debris wastes in inventory were generated primarily by D&D operations in Buildings 371, 559, 707, 771, 774, 776/777, 779, and 886. These buildings were utilized in the past for plutonium production, recovery, laboratory, research and development, and waste and residue treatment and repackaging operations. Some of the waste in inventory was generated as metal debris from these past operations and from D&D; however, based on the amount of hydrogenous waste material detected by radiography, the waste was re-designated as IDC 3010 or 3011.^(4,5,7,8,9,10,11,12,13,14,15)

Decontamination and decommissioning activities include the physical isolation and removal of contaminated gloveboxes, equipment, machinery, furnishings, and support systems. This includes removal and size reduction of glovebox internals, process piping and supports, tanks and ancillary equipment, and other fixed equipment such as ducting, wires, conduits, electrical panels and cabinets. Gloveboxes and equipment are size reduced as necessary and packaged for shipment to WIPP. Process liquids remaining in equipment are typically removed prior to packaging. Small amounts of nonhazardous liquids (e.g., Texaco 650 oil used in criticality drains) discovered during D&D may be absorbed with Oil Dri or solidified with Nochar polymer and included in this waste stream.^(7,8,9,10,11,12,13,14,15)

Current waste generation activities also include waste and residue repackaging operations in Buildings 371, 440, and 771. Containers that do not meet WIPP WAC (e.g., containers with non-conformances or insufficient acceptable knowledge) are unpacked in a containment tent or glovebox, examined and compared to the existing container paperwork, and repackaged to current WIPP waste generating requirements.^(7,8,11)

A more detailed description of each of these processes and process flow diagrams can be found in the *WSRIC Building Books* or archived *WSRIC files*.^(4,5,7,8,9,10,11,12,13,14,15)

6.12.5 RCRA Characterization

This waste stream is NOT characterized as a mixed waste. Table 6.12-2 summarizes the characterization of TRU heterogeneous debris waste. Supporting characterization information is provided in the *BWR Baseline Book* and *WSRIC Building Books*.^(4,5,7,8,9,10,11,12,13,14,15,16)

Table 6.12-2, TRU Heterogeneous Debris RCRA Characterization

IDC	BWR Subpopulation	WSRIC Waste Stream	RCRA CCCs	Non-RCRA CCCs	EPA Hazardous Waste Numbers
<i>Composite Debris (1 to 10 percent organic)</i>					
3010		371 - 30 - 0	N/A ¹	N/A ¹	N/A ¹
3010		371 - 31 - 0	N/A ¹	N/A ¹	N/A ¹
3010		559 - 30 - 86	00	00	None
3010		707 - 36 - 109	00	00	None
3010		707 - 36 - 139	00	07	None
3010		707 - 36 - 141	00	0770	None
3010		707 - 36 - 164	00	70	None
3010		707 - 36 - 202	00	32	None
3010		707 - 36 - 203	00	0732	None
3010		771 - 44 - 0	N/A ¹	N/A ¹	N/A ¹
3010		771 - 50 - 0	N/A ¹	N/A ¹	N/A ¹
3010		771 - 51 - 0	N/A ¹	N/A ¹	N/A ¹
3010		771 - 56 - 0	N/A ¹	N/A ¹	N/A ¹
3010		771 - 62 - 0	N/A ¹	N/A ¹	N/A ¹
3010		771 - 63 - 33	00	00	None
3010		771 - 64 - 0	N/A ¹	N/A ¹	N/A ¹
3010		774 - 14 - 0	N/A ¹	N/A ¹	N/A ¹
3010		774 - 15 - 0	N/A ¹	N/A ¹	N/A ¹
3010		776-777 - 6 - 194	00	?? ²	None
3010		776-777 - 6 - 194 - 001	00	07	None
3010		776-777 - 6 - 194 - 002	00	0732	None
3010		D&D - 3 - 145	00	00	None
3010		D&D - 3 - 147	00	70	None
3010		D&D - 3 - 148	00	70	None
3010	24BB		00	00	None
<i>Composite Debris (>10 percent organic)</i>					
3011		371 - 30 - 0	N/A ¹	N/A ¹	N/A ¹
3011		371 - 31 - 0	N/A ¹	N/A ¹	N/A ¹
3011		440STOR - 11 - 30	00	00	None
3011		559 - 30 - 88	00	00	None
3011		707 - 36 - 110	00	00	None
3011		707 - 36 - 140	00	07	None
3011		707 - 36 - 142	00	0770	None
3011		707 - 36 - 165	00	70	None
3011		707 - 36 - 204	00	32	None
3011		707 - 36 - 205	00	0732	None
3011		771 - 62 - 0	N/A ¹	N/A ¹	N/A ¹
3011		771 - 63 - 31	00	00	None
3011		771 - 64 - 0	N/A ¹	N/A ¹	N/A ¹
3011		774 - 14 - 0	N/A ¹	N/A ¹	N/A ¹

IDC	BWR Subpopulation	WSRIC Waste Stream	RCRA CCCs	Non-RCRA CCCs	EPA Hazardous Waste Numbers
3011		774 - 15 - 0	N/A ¹	N/A ¹	N/A ¹
3011		776-777 - 6 - 196	00	?? ²	None
3011		776-777 - 6 - 196 - 001	00	00	None
3011		776-777 - 6 - 196 - 002	00	07	None
3011		776-777 - 6 - 196 - 003	00	32	None
3011		779 - 43 - 0	N/A ¹	N/A ¹	N/A ¹
3011		D&D - 3 - 146	00	00	None
3011		D&D - 3 - 149	00	70	None
3011		D&D - 3 - 150	00	70	None
3011	24AX	D&D - 3 - 157	00	07	None
3011	25D		00	00	None
3011			00	00	None

Notes:

1. 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.
2. The constituents in this waste stream vary and are determined on a case-by-case basis. The "??" is replaced by the actual chemical constituent code on the Waste/Residue Traveler.

This waste stream was generated primarily from D&D. Prior to size-reduction and packaging of this waste stream, tank systems are emptied and hazardous materials, such as elemental lead shielding, leaded gloves, leaded glass windows, and circuit boards, are removed from glovebox systems and managed as a separate waste stream. Nonhazardous spray fixatives (e.g., 3M FireDam Spray) are used to fix radioactive contamination in place for size reduction operations. The surfaces of gloveboxes, tanks, and construction rubble (e.g., cinder block) may be painted; however, based on paint sample data, the paint does not contribute sufficient heavy metal contamination to cause the waste stream to exhibit the characteristic of toxicity for lead or other metals. RCRA permitted systems that undergo clean closure by decontamination followed by clean rinse analysis or clean debris surface standard closure are also included in this waste stream. Regulated systems and tanks that do not meet the clean closure standards, and glovebox systems that have hazardous materials left in place, are managed as hazardous wastes and are not included in this waste stream. Small amounts of liquids discovered during D&D are characterized using knowledge of historical process operations and/or chemical analysis of the liquid. Liquids that have been characterized as nonhazardous waste are absorbed/solidified and may be included in this waste stream. ^(7,9,10,11,12,13,14,15,16)

A small portion of this waste stream includes waste initially generated as metal debris and re-designated as IDC 3010 or 3011 based on the amount of hydrogenous waste material detected by radiography. The nonhazardous characterization of this waste is verified by reviewing existing information for each container. This includes verifying that the waste was generated within the specified time period, area and buildings, and waste generating process. If this review identifies that EPA hazardous waste numbers

should be assigned, the waste is reassessed and designated as a separate waste stream.^(4,5)

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. Heterogeneous debris associated with decontamination and decommissioning of gloveboxes and equipment utilized for these operations may have been contaminated with beryllium and therefore, trace quantities 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.^(3,10,11,13,16)

Headspace gas sampling and analysis did not detect any hazardous waste VOCs in which the 90% upper confidence limit exceeded the regulatory threshold limit (RTL), which confirms the nonhazardous acceptable knowledge characterization.⁽¹⁹⁾

6.12.6 Transportation

The payload containers in the waste stream must also comply with the TRUPACT-II Authorized Methods for Payload Control (TRAMPAC) requirements. Flammable volatile organic compounds (VOCs) 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.^(4,5,7,8,9,10,11,12,13,14,15)

6.12.7 Radionuclides

Table 6.12-3 summarizes the radionuclides potentially present in TRU heterogeneous debris waste.⁽⁹⁾

Table 6.12-3, TRU Heterogeneous Debris Radionuclides

IDC	Description	Radionuclides	Rationale
3010	Composite Debris (1 to 10 percent organic)	WG Pu, Am-241, DU, EU, Np-237	IDC generated from decontamination and decommissioning (D&D) of buildings associated with plutonium production.
3011	Composite Debris (> 10 percent organic)	WG Pu, Am-241, DU, EU, Np-237	IDC generated from decontamination and decommissioning (D&D) of buildings associated with plutonium production.

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

6.12.8 References

1. DOE 2000. TRUPACT-II Content Codes (TRUCON), Revision 13. DOE/WIPP 89-004.
2. DOE 1995. Transuranic Waste Baseline Inventory Report, Revision 2. DOE/CAO-95-1121.
3. RFETS 2001. RFETS TRU Waste Acceptable Knowledge Supplemental Information. RF/RMRS-97-018, Revision 9.
4. RFETS 2002. Backlog Waste Reassessment Baseline Book, Waste Form 24, Metal.
5. RFETS 2001. Backlog Waste Reassessment Baseline Book, Waste Form 25, Heavy-Metal.
6. Waste and Environmental Management System (WEMS) database.
7. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 371, Version 7.0.
8. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 440STOR, Version 7.0.
9. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 559, Version 7.0.
10. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 707, Version 7.0.
11. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 771, Version 7.0.
12. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 774, Version 7.0.
13. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 776/777, Version 7.0.
14. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 779, Version 7.0.
15. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building 886, Version 7.0.
16. RFETS 2002. Waste Stream and Residue Identification and Characterization, Building D&D, Version 7.0.
17. WASTREN 2002. Interoffice Memorandum from Scott Smith to TWCP Records. SMS-003-2002. April 19.

8/19/02

18. WASTREN 2002. Interoffice Memorandum from Scott Smith to TWCP Records. SMS-004-2002. April 25.
19. Tcnera 2002. RFETS Interoffice Memorandum from Thomas R. Gatcliffe 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 RF029.01 Lot 1, TRG-069-02, August 13.