



**Department of Energy**  
 Carlsbad Field Office  
 P. O. Box 3090  
 Carlsbad, New Mexico 88221  
 NOV 09 2004

 ENTERED



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

Subject: Transmittal of Approved RFETS WSPF Number RF036.01, TRU Blacktop, Concrete, Dirt and Sand

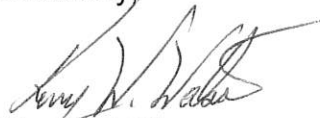
Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office (CBFO) has approved the Rocky Flats Environmental Technology Site (RFETS) Waste Stream Profile Form (WSPF) RF036.01, TRU Blacktop, Concrete, Dirt and Sand.

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

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

Sincerely,



Kerry W. Watson  
 Office Director  
 Office of Characterization and Transportation

Enclosure

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



Waste Stream Profile Number: RF036.01Generator site name: RFETSTechnical contact: Eric D'AmicoGenerator site EPA ID: CO7890010526Phone number: (303) 966-5362Date of audit report approval by NMED: March 9, 2000 as amended February 6, 2001; May 24, 2001; June 5, 2001; April 5, 2002; April 8, 2002; August 20, 2002; August 29, 2002; December 20, 2002; April 8, 2003; September 19, 2003; December 30, 2003; July 14, 2004 and September 14, 2004Title, version number, and date of documents used for WAP certification: Rocky Flats Environmental Technology Site TRU Waste Characterization Program Quality Assurance Project Plan, 95-QAPjP-0050, Version 10, August 2004.Transuranic (TRU) Waste Management Manual, Version 7, 1-MAN-008-WM-001, February 2004. Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant, Revision 1.0. March 2004.Did your facility generate this waste?  Yes  No If no, provide the name and EPA ID of the original generator:**Waste Stream Information<sup>(1)</sup>**WIPP ID: RF-TT0374Summary Category Group: S5000<sup>(2)</sup> Waste Matrix Code Group: Heterogeneous Debris Waste<sup>(2)</sup>Waste Stream Name: TRU Blacktop, Concrete, Dirt, and Sand<sup>(2)</sup>Description from the WTWBIR: This waste stream is construction rubble generated during decontamination and decommissioning activities. This waste consists of blacktop/concrete/dirt/sand.<sup>(2)</sup>Defense TRU Waste:  Yes  NoCheck one:  CH  RH Number of SWBs N/A Number of Drums 170 Number of Canisters N/ABatch Data Report numbers supporting this waste stream characterization: See Table 7.List applicable EPA Hazardous Waste Codes<sup>(3)</sup>: NoneApplicable TRUCON Content Codes: RF121A/221A, RF121D/221D, RF121DA/221DA, RF121DAF/221DAF, RF121DF/221DF, RF121E/221E, RF121F/221F, RF121H/221H, RF121I/221I, RF121J/221J, RF121K/221K, RF121N/221N, RF121T/221T, RF121W/221W**Acceptable Knowledge Information<sup>(1)</sup>****Required Program Information**

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

**Required Waste Stream Information**

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

Supplemental Documentation:

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

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

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

- Radiography: Reference List, Nos. 13, 14, 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.

  
 Signature of Site Project Manager

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

10/6/04  
 Date

  
 Signature of Site QA Officer

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

10/6/04  
 Date

- NOTE**
- (1) Use back of sheet or continuation sheets, if required.
  - (2) The WTWBIR Waste Stream Name for RF-TT0374 is Soil & Cleanup Debris/TRU. The Waste Stream Name has been changed to TRU Blacktop, Concrete, Dirt, and Sand. Waste Matrix Code S4200 has been changed to the more appropriate Waste Matrix Code S5420 since the waste is greater than 50 volume percent inorganic debris. The Waste Matrix Code Group has been expanded to Heterogeneous Debris Waste. The Waste Stream Name, Summary Category Group, Waste Matrix Code, and Waste Matrix Code Group are based on acceptable knowledge (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 23, Soil and Cleanup Debris, August 2004.
2. Waste Stream and Residue Identification and Characterization (WSRIC), Version 7, April 2004, and archived versions.
3. RFETS TRU Waste Acceptable Knowledge Supplemental Information, RF/RMRS-97-018, Revision 13, May 2004.
4. Waste and Environmental Management System (WEMS) database.
5. Transuranic (TRU) Waste Certification, PRO-X05-WC-4018, Version 7, March 2004.
6. Acceptable Knowledge TRU/TRM Waste Stream Summaries, RMRS-WIPP-98-100, Section 6.16, Revision 0, October 2004.
7. GC/MS Determination of Volatile Organics Waste Characterization, L-4111-X, January 2002.
8. Waste Characterization, Generation, and Packaging; 1-PRO-079-WGI-001, Revision 4, May 2002.
9. Waste Characterization Program Manual, 1-MAN-036-EWQA-Section 1.6.1, Revision 3, May 2002.
10. Interoffice Memorandum from Thomas R. Galliffe to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile RF036.01 (TRU Blacktop, Concrete, Dirt, and Sand) Lot 1, TRG-287-04, September 2004.
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 10, March 2004.
14. Real-Time Radiography Testing of Transuranic and Low-Level Waste in Building 569, 4-119-NDT-00569, Revision 5, January 2002.
15. Mobile Real-Time Radiography Testing of Transuranic and Low-Level Waste, PRO-1520-Mobile-RTR, Version 3, March 2004.
16. Glovebox and C-Cell Waste Operations, PRO-1358-440-VERP, Version 6, March 2004.
17. RTR Visual Examination Confirmation, Building 371, PRO-1608-VECRR-371, Revision 0, October 2002.
18. Visual Examination for Confirmation of RTR, 4-H80-776-ASRF-007, Revision 5, June 2001.

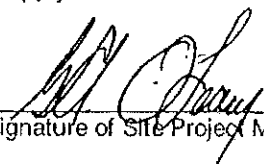
**Form A**  
**Reconciliation with Data Quality Objectives**

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

WSPF # RF036.01

Item	Check Box <sup>a</sup>	Reconciliation Parameter
1	✓	Waste Matrix Code as reported in WEMS.
2	✓	Waste Material Parameter Weights for individual containers as reported in WEMS.
3	✓	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	✓	Container mass and activities of each radionuclide of concern as reported in WEMS.
5	✓	Each waste container of waste contains TRU radioactive waste.
6	✓	Mean concentrations, UCL <sub>90</sub> for the mean concentrations, standard deviations, and the number of samples collected for each VOC in the headspace gas of waste containers in the waste stream/waste stream lot.
7	N/A	Mean concentrations, UCL <sub>90</sub> for the mean concentrations, standard deviations, and number of samples collected for VOCs in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
8	N/A	Mean concentrations, UCL <sub>90</sub> for the mean concentrations, standard deviations, number of samples collected for SVOCs in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
9	N/A	Mean concentrations, UCL <sub>90</sub> for the mean concentrations, standard deviations, and number of samples collected for metals in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
10	N/A	Sufficient number of samples was taken to meet statistical sampling requirements.
11	✓	Only validated data were used in the above calculations, as documented through the site data review and validation forms and process.
12	✓	Waste containers were selected randomly for sampling, as documented in site procedures.
13	✓	The potential flammability of TRU waste headspace gases.
14	✓	Sufficient number of waste containers was visually examined to determine with a reasonable level of certainty that the UCL <sub>90</sub> for the 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.

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

  
Signature of Site Project Manager

G. A. O'Leary  
Printed Name

10/6/04  
Date

Data Summary Report—Table 2: Headspace Gas Summary Data

WSPF # RF036.01

Sampling and Analysis Method (check one):

100% Sampling

Reduced Sampling

2A

ANALYTE <sup>a</sup>	# Samples <sup>b</sup>	Transform Applied <sup>c</sup>	Normality Test (Pass/Fail) <sup>d</sup>	Maximum (ppmv)	Mean <sup>d</sup>	Std. Dev. <sup>d</sup>	UCL <sub>90</sub> <sup>d</sup>	Transformed RTL <sup>e</sup>	Un-Transformed RTL <sup>e</sup> (ppmV)	EPA Code <sup>f</sup>
1,1-Dichloroethane	0			2.6	1.124				10	
1,2-Dichloroethane	0			2.7	1.131				10	
1,1-Dichloroethylene	0			3.2	1.229				10	
cis-1,2-Dichloroethylene	0			3.2	1.295				10	
trans-1,2-Dichloroethylene	0			2.5	1.122				10	
1,1,2,2-Tetrachloroethane	0			3.4	1.191				10	
1,1,1-Trichloroethane	0			2.9	1.282				10	
1,1,2-Trichloro-1,2,2-Trifluoroethane	0			2.6	1.063				10	
1,2,4-Trimethylbenzene	1	None	Fail <sup>g</sup>	2.4	1.174	0.266	1.239	NA	NA	
1,3,5-Trimethylbenzene	1	None	Fail <sup>g</sup>	2.9	1.135	0.308	1.21	NA	NA	
Acetone	6	Log	Fail <sup>g</sup>	66	2.778	0.622	2.93	4.605	100	
Benzene	0			2.7	1.082				10	
Bromoform	0			2.3	1.059				10	
Butanol	0			33	12.107				100	
Carbon disulfide	0			3.6	1.336				10	
Carbon tetrachloride	5	Log	Fail <sup>g</sup>	8.8	0.459	0.689	0.627	2.303	10	
Chlorobenzene	0			2.8	0.996				10	
Chloroform	2	Sq. Rt.	Fail <sup>g</sup>	3.2	1.071	0.257	1.133	3.162	10	
Cyclohexane	0			3.4	1.327				NA	
Ethyl benzene	0			2.2	0.957				10	
Ethyl ether	0			3.5	1.347				10	
Methanol	2	Log	Fail <sup>g</sup>	31	2.407	0.358	2.494	4.605	100	
Methyl ethyl ketone	0			34	13.631				100	
Methyl isobutyl ketone	0			28	10.831				100	
Methylene chloride	1	Sq. Rt.	Fail <sup>g</sup>	3.4	1.112	0.244	1.172	3.162	10	
o-Xylene	0			2.6	1.072				10	
m,p-Xylene	0			4.9	1.989				10	
Tetrachloroethylene	0			2.5	1.127				10	
Toluene	24	Sq. Rt.	Fail <sup>g</sup>	25	2.799	1.195	3.09	8.4865	72.02 <sup>h</sup>	
Trichloroethylene	0			2.4	1.006				10	

NOTES:

- <sup>a</sup> A total of 29 samples were collected and analyzed. Analysis was performed for all analytes identified. Samples were not composited.
- <sup>b</sup> Identifies the number of samples in which the associated analyte was detected.
- <sup>c</sup> Identifies the type of data transformation used, if applicable, to achieve (or better achieve) a normal probability distribution of the data.

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

## NOTES (continued):

- <sup>d</sup> Statistics calculated based on using  $\frac{1}{2}$  the MDL for less-than-detectable observations with data transformation as identified (Reference 10). When transformation was applied, the Mean and UCL<sub>90</sub> 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<sub>90</sub> values is not meaningful. With fewer than five detectable concentrations, calculated values for UCL<sub>90</sub> are subject to potentially large relative error.
- <sup>e</sup> RTLs for headspace gas analysis results correspond to the analyte PRQL for analytes that are 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 TRUPACT-II Authorized Methods for Payload Control (TRAMPAC).
- <sup>f</sup> No entry indicates that the respective UCL<sub>90</sub> value did not exceed the associated RTL.
- <sup>g</sup> Data set (with or without transformation) did not pass the test for normality. The data set that most approximated a normal distribution was used for computation of statistics.
- <sup>h</sup> Limit used for evaluation of EPA Hazardous Waste Code for toluene (Reference No. 3).

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

WSPF # RF036.01

2B

TENTATIVELY IDENTIFIED COMPOUND (TIC)	Maximum Observed Estimated Concentrations (ppmV)	# Samples Containing TIC
Acetic Acid (CAS No. 64-19-7)	15	1

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

Did the data verify the acceptable knowledge?  Yes  No

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

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



**Data Summary Report—Table 6: Exclusion of Prohibited Items****WSPF # RF036.01**

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:

- Liquid waste (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1-inch or 2.5-centimeters of liquid in the bottom of the container. Total residual liquid in any payload container (e.g., 55-gallon drum or standard waste box) may not exceed 1 percent volume of that container.)
- 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

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 # RF036.01

Package No.	Radioassay Data Package	Headspace Sample Batch No.	Headspace VOC Data Package	RTR Data Package <sup>a</sup>	VE or VV Data Package <sup>b</sup>
D64429	440IP1-DP-063003	04W0208	HGAS-DP-00924	6R032	
D90429	CIQ-00-005	2001-203	HVOC-DP-00557	6T-1626	
DB7496	569IP1-DP-081302	04W0174	HGAS-DP-00890	5T0305	
DB7565	440IP1-DP-041304	04W0136	HGAS-DP-00852	MT0075	
DC1669	569IP1-DP-103102	04W0152	HGAS-DP-00868	5T-0320	
DC1692	569IP1-DP-071701	04W0102	HGAS-DP-00819	5T0221	
DC1702	569IP1-DP-022802	04W0104	HGAS-DP-00821		VV-707-00003
DC3750	569IP1-DP-022502	04W0124	HGAS-DP-00841	5T-0290	
DC8925	569IP1-DP-111402	04W0084	HGAS-DP-00802		VV-559-00010
DD0743	569IP1-DP-070202	04W0152	HGAS-DP-00868		VV-776-00012
DD1903	569IP1-DP-121302	04W0108	HGAS-DP-00825		VV-707-00063
DD2871	569IP1-DP-061302	04W0108	HGAS-DP-00825		VV-776-00012
DD2876	569IP1-DP-061302	04W0108	HGAS-DP-00825		VV-776-00012
DD3486	569IP1-DP-081902	04W0082	HGAS-DP-00800		VV-776-00018
DD3503	440IP1-DP-042903	04W0109	HGAS-DP-00826		VV-776-00037
DD3697	440IP1-DP-042903	04W0177	HGAS-DP-00893		VV-776-00036
DD4283	440IP1-DP-030204	04W0163	HGAS-DP-00879		VV-371-00090
DD4534	440IP1-DP-042103	04W0135	HGAS-DP-00851		VV-776-00033
DD5671	569IP1-DP-020703	04W0074	HGAS-DP-00792		VV-707-00044
DD6153	440IP1-DP-040703	04W0250	HGAS-DP-00966		VV-707-00062
DD6346	440IP1-DP-040403	04W0150	HGAS-DP-00866		VV-707-00060
DD6860	569IP1-DP-021303	04W0175	HGAS-DP-00891		VV-707-00058
DD6914	569IP1-DP-030503	04W0149	HGAS-DP-00865		VV-707-00051
DD6921	569IP1-DP-030403	04W0149	HGAS-DP-00865		VV-707-00051
DD7017	440IP1-DP-040203	04W0180	HGAS-DP-00896		VV-707-00057
DD7032	569IP1-DP-021803	04W0149	HGAS-DP-00865		VV-707-00048
DD7117	569IP1-DP-030603	04W0113	HGAS-DP-00830		VV-707-00051
DD7162	569IP1-DP-030503	04W0149	HGAS-DP-00865		VV-707-00052
DD7421	440IP1-DP-040203	04W0180	HGAS-DP-00896		VV-707-00057

**NOTES:**

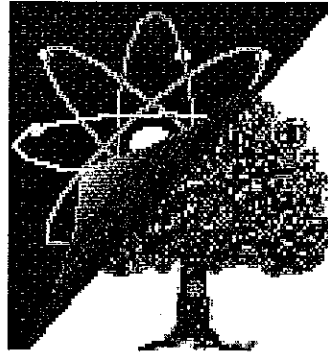
<sup>a</sup> No entry indicates visual verification (VV) at the time of waste packaging using the visual examination (VE) technique was performed for the container.

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

Acceptable Knowledge Summary

WSPF # RF036.01

RMRS-WIPP-98-100, Acceptable Knowledge TRU/TRM Waste Stream Summaries, Section 6.16, TRU Blacktop, Concrete, Dirt, and Sand (attached).



**Rocky Flats Environmental Technology Site**

**ACCEPTABLE KNOWLEDGE INFORMATION**

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

**RMRS-WIPP-98-100**

**Section 6.16**

**TRU Blacktop, Concrete, Dirt, and Sand**

**Profile No. RF036.01**

**Revision 0**

Reviewed for Classification/UCNI  
By: Unclassified Not UCNI  
Reference Exemption Number CEX-032-00  
Date: October 5, 2004

Approval signatures in Site Document Control history file

**6.16 TRU Blacktop, Concrete, Dirt, and Sand**

**Profile No. RF036.01**

**Acceptable Knowledge (AK) Waste Stream Summary**

Waste Stream Name: TRU Blacktop, Concrete, Dirt, and Sand

Generation Buildings: Buildings 371, 440, 559, 707, 771, 774, 776, 777, 779 <sup>(1,6)</sup>

Waste Stream Volume (Retrievably Stored): 18 55-gallon drums <sup>(1,6)</sup>

Generation Dates (Retrievably Stored): November 1988 - July 2001 <sup>(1,6)</sup>

Waste Stream Volume (Newly Generated): 174 55-gallon drums <sup>(1,6)</sup>

Generation Dates (Newly Generated): November 2001 - November 2004 <sup>(1,6)</sup>

Waste Stream Volume (Projected): 2 55-gallon drums <sup>(1,6,19)</sup>

Generation Dates (Projected): November 2004 - April 2005 <sup>(1,6,19)</sup>

NOTE: Waste may be repackaged in Building 440 in the future.

TRUCON Content Code <sup>(2,18)</sup>: RF121A/221A, RF121D/221D, RF121DA/221DA,  
RF121DAF/221DAF, RF121DF/221DF, RF121E/221E, RF121F/221F, RF121H/221H,  
RF121I/221I, RF121J/221J, RF121K/221K, RF121N/221N, RF121T/221T, RF121W/221W

Process Knowledge Demonstrates Flammable VOCs in Headspace < 500 ppm: No (see Section 6.16.6)

**6.16.1 Transuranic Waste Baseline Inventory Report Information** <sup>(3)</sup>

WIPP Identification Number(s): RF-TT0374

Summary Category Group: S5000 Waste Matrix Code Group: Heterogeneous <sup>See Note A</sup>

Waste Matrix Code: S4200 <sup>See Note A</sup> Waste Stream Name: Soil & Cleanup Debris/  
TRU <sup>See Note A</sup>

Description from the WTWBIR: This waste stream is construction rubble generated during  
decontamination and decommissioning (D&D) activities. This waste consists of  
blacktop/concrete/dirt/sand.

Note A: The WTWBIR Waste Stream Name for RF-TT0374 is Soil & Cleanup Debris/TRU. The Waste Stream Name has been changed to TRU Blacktop, Concrete, Dirt, and Sand. Waste Matrix Code S4200 has been changed to the more appropriate Waste Matrix Code S5420 since the waste is greater than 50 volume percent inorganic debris. The Waste Matrix Code Group has been expanded to Heterogeneous Debris Waste. The Waste Stream Name, Summary Category Group, Waste Matrix Code, and Waste Matrix Code Group are based on acceptable knowledge (see Section 6.16.2).

6.16.2 Waste Stream Description

Transuranic (TRU) Blacktop, Concrete, Dirt, and Sand (IDC 374) consists of heterogeneous debris material primarily generated from D&D operations, as well as maintenance activities. This material is similar in material, physical form, and hazardous constituents, and is therefore considered a single waste stream. Table 6.16-1 presents the waste matrix code and waste material parameters for TRU Blacktop, Concrete, Dirt, and Sand. <sup>(4)</sup>

**Table 6.16-1, TRU Blacktop, Concrete, Dirt, and Sand**

IDC	IDC Description	Waste Matrix Code	Waste Material Parameters	Weight % (Average)
374	Blacktop, Concrete, Dirt and Sand	S5420, Predominantly Inorganic Debris	Note 1	100%

Notes:

1. The weight percentages for each waste material parameter are determined on a container basis by RTR and/or visual examination/verification because the variability of the waste stream does not result in a consistent average.

**Blacktop, Concrete, Dirt, and Sand:** This material consists of construction rubble such as concrete debris, concrete chunks with rebar, drywall (gypsum), granite tables and surface plates, marble tables, masonry, scabbled concrete, mortar, gravel, magnesium oxide sand, and small quantities of soil and blacktop (e.g., paving material consisting of asphalt, quartz, and sand). Small quantities of absorbent [oil dry or NoChar® (i.e., a polymer absorbent)] may be added when necessary during repackaging to absorb any residual liquid (from hydrolasing operations).  
 (5,7,8,9,10,11,12,13,14,15,17)

6.16.3 Areas of Operation

TRU Blacktop, Concrete, Dirt, and Sand is generated by the following defense operations in Buildings 371, 440, 559, 707, 771, 774, 776, 777, and 779.  
 (4,5,6,7,8,9,10,11,12,13,14)

- Maintenance
- Waste Repackaging Operations
- D&D

6.16.4 Generation Processes

TRU Blacktop, Concrete, Dirt, and Sand in inventory is primarily generated during D&D activities in Buildings 371, 440, 559, 707, 771, 774, 776, 777, and 779. These buildings were utilized in the past for plutonium production, recovery, laboratory operations, maintenance, and waste and residue treatment and repackaging operations. Contamination historically occurred in the buildings due to breaches in primary radiological containment that resulted in spills and airborne releases of radiological materials. The released materials and associated cleanup materials did not contain

constituents that render the waste stream a hazardous waste (see Section 6.16.5).  
(5,7,8,9,10,11,12,13,14)

D&D activities beginning in 1996 include the physical isolation and removal of contaminated gloveboxes, equipment, machinery, furnishings, and support systems. This includes removal and size reduction of granite and marble tables, surface plates and slabs; removal of drywall; removal of magnesium oxide sand (e.g., unused fire suppressant) from gloveboxes; and removal of surface contamination from building floors and walls with grinding or scraping equipment (mechanical scrubbing) and high pressure water (hydrolasing). Small quantities of soil and blacktop (e.g., paving material consisting of asphalt, quartz, and sand) may be removed and included in the waste stream. Water from hydrolasing operations is separated (by filtration, pouring, pumping, and/or aspirating) from the solid material and is recycled or disposed of separately. A portion of this waste stream is construction rubble generated from maintenance activities prior to 1997, such as boring through building surfaces including floors and walls for the installation or stripout of equipment. (5,7,9,10,11,12,13,14,15,17,21)

Current and historical waste generation activities after 1999 also include waste drum and crate repackaging operations in Buildings 440 and 771. Containers with non-conformances or insufficient acceptable knowledge are unpacked in a containment tent, examined and compared to the existing container paperwork, and repackaged to current WIPP waste requirements. (8,11)

Process flow diagrams for these operations can be found in the Waste Stream and Residue Identification and Characterization (WSRIC) Building Books. (7,8,9,10,11,13,14)

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

This waste stream is **NOT** characterized as a mixed waste. As described in Section 6.16.2, this waste is generated from similar activities; is similar in material, physical form, and hazardous constituents; and is, therefore, considered a single waste stream. The specific Backlog Waste Reassessment (BWR) Baseline Book Subpopulations and WSRIC Process Numbers associated with the TRU Blacktop, Concrete, Dirt, and Sand, waste stream are listed in the WEMS AK Waste Stream Summary for Profile Number RF036.01. (6)

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

TRU Blacktop, Concrete, Dirt, and Sand is not RCRA-regulated hazardous waste. RCRA-regulated organic and metal compounds were not used in any of the generating or repackaging processes and the waste does not contain listed hazardous constituents. Characterization of buildings and areas within buildings for closure and demolition is

conducted according to the Rocky Flats Environmental Technology Site (RFETS) D&D Characterization Protocol which mandates characterization of each building based on historical operations, historical spill data, sampling and analysis, and surveys. The analytical data collected by the D&D projects supports the acceptable knowledge that this waste stream contains no RCRA hazardous constituents and exhibits no RCRA hazardous characteristics. No discarded chemical products, off-specification species, chemical residues, and spill residues thereof (40 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 F, K, U, or P listings have been applied to this waste stream. <sup>(5,7,8,9,10,11,13,14,15,22)</sup>

Beryllium parts were used in the manufacture/assembly of weapons components, and residual beryllium contamination of plutonium parts may have occurred; therefore, the blacktop, concrete, dirt, and sand materials may have been contaminated with beryllium and residual quantities of beryllium may be present in the waste stream. Any beryllium present (less than 1 % by weight) is as a contaminant of the process and not as unused commercial chemical product, and therefore is not a P015-listed waste. <sup>(7,8,10,13,15)</sup>

Headspace gas sampling and analysis of containers assigned to this waste stream by AK detected 8 VOCs (acetone, carbon tetrachloride, chloroform, methanol, methylene chloride, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and toluene). 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 (UCL<sub>90</sub>) of the mean concentrations for none of the analytes were found to exceed their associated RTL values. Therefore, the headspace data confirms the acceptable knowledge characterization that no characteristic volatile organic or F-listed solvent EPA codes are applicable. <sup>(16)</sup>

#### 6.16.6 Transportation

The payload containers in the waste stream must also comply with the TRUPACT-II Authorized Methods for Payload Control (TRAMPAC) requirements. Flammable VOCs including acetone, methanol, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and toluene were detected by headspace gas sampling and analysis. Therefore, flammable VOCs in the payload container headspace have the potential to exceed 500 ppm. All payload containers, including those that exceed 500 ppm flammable VOCs in the headspace gas, are evaluated for compliance with applicable TRAMPAC requirements using the eTRAMPAC system prior to shipment. Any containers not passing the eTRAMPAC compliance evaluation are identified and corrected through the site non-conformance reporting system. <sup>(16)</sup>

Although one or more individual payload containers may contain greater than one weight percent depleted uranium, the waste stream as a whole does not. <sup>(6,20)</sup>

#### 6.16.7 Radionuclides



Table 6.16-2 summarizes the radionuclides that may be present in TRU Blacktop, Concrete, Dirt, and Sand. <sup>(4)</sup>

**Table 6.16-2, TRU Blacktop, Concrete, Dirt, and Sand Radionuclides**

IDC	Description	Radionuclides
374	Blacktop, Concrete, Dirt, and Sand	WG Pu, Am-241, Am-243, DU, EU, Np-237

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

#### 6.16.8 References

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21. Wastren 2004. Interview of Greg Utrecht. Hydrolasing Operation Description, October 28, 2004.
22. RFETS 2002. The D&D Characterization Protocol, MAN-077-DDCP, Revision 4.