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

JUL 29 2011

ENTERED

AUG

Mr. John Kieling, Acting Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Review of Advanced Mixed Waste Treatment Project Waste Stream Profile Form BN600, AMWTP WMF-676 PCB Contaminated Debris (BN600)

Dear Mr. Kieling:

The Department of Energy Carlsbad Field Office has approved the Advanced Mixed Waste Treatment Project Waste Stream Profile Form BN600, AMWTP WMF-676 PCB Contaminated Debris (BN600).

Enclosed is a copy of the form as required by Section C-5a of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit No. NM4890139088-TSDF.

If you have questions on this matter, please contact J.R. Stroble, Office of the National TRU Program Director, at (575) 234-7313.

Sincerely,

Edward Ziemianski
Acting Manager

Enclosure

cc: w/ enclosure

T. Hall, NMED	*ED
J. Davis, NMED	ED
C. Walker, TechLaw	ED
CBFO M&RC	

cc: w/o enclosure

J. Wells, DOE-ID	ED
E. Schweinsberg, AMWTP	ED
C. Gadbury, CBFO	ED
G. Basabilvazo, CBFO	ED
J. R. Stroble, CBFO	ED
K. Watson, CBFO	ED
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CBFO:NTP:JRS:ANC:11-1426:UFC 5900.00

AMWTP Advanced Mixed Waste Treatment Project	**Waste Stream Profile Form**	**Form-1195** **Rev. 5** **Effective: 03/02/11** **Page 1 of 3**

Implementing Document: MP-TRUW-8.14

Waste Stream Profile Number: BN600

Generator site name: Advanced Mixed Waste Treatment Project | Technical contact: Eric Schweinsberg

Generator site EPA ID: ID4890008952 | Technical contact phone number: (208)557-6425

Date(s) of audit report approval by NMED: 4/29/2005 (Revised 5/3/2005), 6/16/06, 1/18/08, 1/9/09, 1/8/2010, 1/25/11

Title, version number, and date of documents used for WAP certification:

Certification Plan for INL Transuranic Waste, MP-TRUW-8.1, Rev 20, 12/28/2010
Quality Assurance Project Plan, MP-TRUW-8.2, Rev 14, 12/28/2010
CCP Transuranic Authorized Method for Payload Control (CCP CH-TRAMPAC), CCP-PO-003, Rev. 12, 12/29/2010

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

Waste Stream Information

WIPP ID: IN-BN600 (3) | Summary Category Group: S5000

Waste Matrix Code Group: Heterogeneous Debris Waste | Waste Stream Name: AMWTP WMF-676 PCB Contaminated Debris (BN600)

Description from the ATWIR: AMWTP WMF-676 PCB contaminated debris is generated as a result of removing and/or treating prohibited PCB waste within the AMWTF WMF-676 north and south box lines and the drummed waste packaging glovebox (DWPG) and special case waste (SCW) areas (4)

Defense TRU Waste: ☒ Yes ☐ No | Check One: ☒ CH ☐ RH

Number of SWBs 0 | Number of Drums 745 | Number of Canisters 0

Batch Data report numbers supporting this waste stream characterization: See Characterization Information Summary Report, Table 5

List applicable EPA Hazardous Waste Numbers:[2] D004, D005, D006, D007, D008, D009, D010, D011, D022, D027, D028, D029, D030, D032, D034, D037, D043, F001, F002, F004, F005, F006, F007 and F009

Applicable TRUCON Content Codes: ID 125/225

Acceptable Knowledge Information[1]

(For the following, enter the supporting documentation used [i.e., references and dates]
)

Required Program Information

Map of site: Reference No. 2

Facility mission description: Reference No. 3

Description of operations that generate waste: References Nos.1 and 3

Waste identification/categorization schemes: References Nos, 1,3, 4, and 5

Types and quantities of waste generated: References Nos.1 and 3

Correlation of waste streams generated from the same building and process, as appropriate: References Nos.1and 3

Waste certification procedures: Reference Nos. 7 and 15

Required Waste Stream Information

Area(s) and building(s) from which the waste stream was generated: References Nos. 1 and3

Waste stream volume and time period of generation: References Nos.1 and 3

Waste generating process description for each building: References Nos.1 and 3

Documentation regarding how site has historically managed the waste: References Nos.1 and 3

Process flow diagrams: References Nos.1 and 3

Material inputs or other information identifying chemical/radionuclide content and physical waste form: References Nos. 1, 3, 4, 5 and 6

Waste Material Parameter Weight Estimates per unit of waste: Reference No.1

Which Defense Activity generated the waste: (check one)

- ☒ Weapons activities including defense inertial confinement fusion [5]
- ☐ 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 material production

Additional Acceptable Knowledge Documentation

Process design documents:	N/A
Standard operating procedures:	Reference No.1 (see references 11, 23, 24, 31, 33, 34, 35, 38, 39, 47, 48, 50 and 51 in RPT-TRUW-88)
Safety Analysis Reports:	Reference No 11
Waste packaging records:	N/A
Test plans/research project reports:	N/A
Site databases:	Reference No 1 (see reference 49 in RPT-TRUW-88)
Information from site personnel:	Reference No 1 and 14 (see reference 36 in RPT-TRUW-88)
Standard industry documents:	N/A
Analytical data relevant to the waste stream:	References No. 1 (see references 26, 27 and 28 of the RPT-TRUW-88)
Material safety data sheets:	Reference No 1 (see references 16, 32, 37, 40, 41, 42, 43 and 44 of the RPT-TRUW-88)
Sampling and analysis data from comparable/surrogate waste streams:	N/A
Laboratory notebooks:	N/A

Characterization Information[2]

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

Radiography:	References Nos.8
Visual Examination:	References Nos. 9 and 10

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	Printed Name	Date
Erii Schweinsberg	Erii Schweinsberg	7/21/11

NOTE: (1) Use back of sheet or continuation sheets, if required.

(2) If radiography, visual examination were used to determine EPA Hazardous Waste Codes, attach signed Characterization Information Summary documenting this determination.

(3) The proposed ATWIR number is not currently in the ATWIR. The noted ATWIR number will be included in the 2012 ATWIR.

(4) The noted description is not currently in the ATWIR. The description will be included in the 2012 ATWIR.

(5) Additional defense activities that are related to this waste include defense research and development and defense nuclear material production.

WASTE STREAM PROFILE CONTINUATION SHEET

Reference List:

1. RPT-TRUW-88, Acceptable Knowledge Summary for WMF-676 PCB Contaminated Debris Waste (BN600), July, 2011
2. DWG-5232-52-0101, Site Plan of the Advanced Mixed Waste Treatment Facility, Rev. 0, April 1999
3. RPT-TRUW-06, AMWTP Baseline AK for Newly Generated Waste, Rev. 13, July 13, 2011
4. RPT-TRUW-12, AMWTP Waste Stream Designations, Rev 17, July 20, 2011
5. RPT-TRUW-05, Waste Matrix Code Reference Manual, Rev 27, June 8, 2011
6. RPT-TRUW-07, Determination of Radioisotopic Content in TRU Waste Based on Acceptable Knowledge, Rev. 17, June 23, 2011
7. MP-TRUW-8.5, Advanced Mixed Waste Treatment Project TRU Waste Certification, Rev. 25, December10, 2009
8. INST-OI-12, Real Time Radiography Operations, Rev. 47, June 22, 2011
9. INST-OI-34, Non-Facility Visual Examination Operations, Rev 24, March 17, 2011
10. INST-FOI-17, Facility Visual Examination Operations, Rev 22, March 17, 2011
11. RPT-DSA-02, Documented Safety Analysis, Rev. 7, April 6, 2011
12. MP-TRUW-8.1, Certification Plan for INL Transuranic Waste, Rev 20, December 28, 2010
13. MP-TRUW-8.2, Quality Assurance Project Plan, , Rev 14, December 28, 2010
14. HWD-041811-03, AMWTP Hazardous Waste Determination for WMF-676 PCB Contaminated Debris (BN-600), July 20, 2011
15. CCP-PO-003, CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC), Central Characterization Project, Rev. 12, December 29, 2010

AMWTP Advanced Mixed Waste Treatment Project	**Reconciliation with Data Quality Objectives**	Form-1597 Rev. 5 Effective: 6/14/2011@1800 hrs Page 1 of 3

Implementing Document: MP-TRUW-8.11

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

WSPF No.: BN600

Data Quality Objective	Yes	No	N/A	Comment
1. Have all containers in the lot been assigned an appropriate Waste Matrix Code?	☒	☐	☐	
2. Have waste material parameter weights been established for each container in the lot?	☒	☐	☐	
3. Does each waste container of waste contain transuranic (TRU) radioactive waste?	☒	☐	☐	
4. Have mean concentrations, 90 % Upper Confidence Level (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for each Volatile Organic Compound (VOC) in the headspace gas of waste containers in the waste stream lot been evaluated against the constituent hazardous waste number assignments?	☒	☐	☐	
5. Has the potential flammability of TRU waste headspace gases been evaluated for the lot?	☐	☐	☒	Central Characterization Project (CCP) will evaluate containers on an individual basis through transportation headspace gas and WIPP Data System (WDS).
6. Have mean concentrations, UCL_{90} values for the mean concentrations, standard deviations, and number of samples collected for VOCs, Semi-Volatile Organic Compounds (SVOCs), and metals in the waste stream lot been evaluated against the constituent hazardous waste number assignments? (if applicable)	☐	☐	☒	WAP solid sampling not required for this S5000 waste stream.

WSPF No.: BN600

Data Quality Objective	Yes	No	N/A	Comment
7. Does the waste stream exhibit a toxicity characteristic (TC) under 40 CFR Part 261, Subpart C?	☒	☐	☐	
8. Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D?	☒	☐	☐	
9. Can the waste stream be classified as hazardous or nonhazardous at the UCL_{90}?	☒	☐	☐	
10. Was an appropriate packaging configuration and Drum Age Criteria (DAC) applied and documented in the headspace gas sampling documentation and was the drum age criteria met prior to sampling?	☒	☐	☐	
11. Have all tentatively identified compounds (TICs) been appropriately identified and reported in accordance with the requirements of MP-TRUW-8.2, Quality Assurance Project Plan, Section C3-1, for the lot?	☒	☐	☐	
12. Have the overall completeness, comparability, and representativeness quality assurance objectives (QAOs) been met for each of the analytical and testing procedures as specified in the Quality Assurance Project Plan (QAPjP), Sections C3-2 through C3-9, for the lot?	☒	☐	☐	WAP solid sampling not required for this S5000 waste stream.
13. Have the program required quantitation limit (PRQLs) for all analyses been met for the lot?	☒	☐	☐	

WSPF No.: BN600

Data Quality Objective	Yes	No	N/A	Comment
14. Was an Open nonconformance report (NCR) search performed for all containers/pucks/source containers on the final list for the waste stream profile/reconciliation lot?	☒	☐	☐	
15. Was an Open NCR search performed for all batches in the final list for the waste stream profile/reconciliation lot?	☒	☐	☐	
16. Were all batches identified in the waste stream profile form (WSPF) or reconciliation lot complete through site project manager (SPM) signature release? List any batches identified as not complete through validation.	☒	☐	☐	
17. Were any open NCRs found that are applicable to the waste stream profile/reconciliation lot? List NCR, container, and batch.	☐	☒	☐	
18. Is there an approved AK Sufficiency Determination for this waste stream?	☐	☒	☐	

Site Project Manager — Signature: Eric Schweinsberg — Printed Name: Eric Schweinsberg — Date: 7/21/11

2nd Site Project Manager — Signature: [signature] — Printed Name: Steve Carpenter — Date: 7.21.11

AMWTP Advanced Mixed Waste Treatment Project	Characterization Information Summary Report	Form-1598 Rev. 8 Effective: 02/04/11 Page 1 of 9

Implementing Document: MP-TRUW-8.14

WSPF Number: BN600 Lot Number: 1

SPM

Printed Name: Eric Schweinsberg Signature: [signature] Date: 7/21/11

2nd SPM

Printed Name: Steve Gaspar Signature: [signature] Date: 7.21.11

SPM signature indicates that the information presented in this package is consistent with analytical batch reports and indicates concurrence with all information presented in this report.

WSPF Number: BN600 Lot Number: 1

Characterization Information Summary

Characterization Description:

Container selection and number of samples for Headspace Gas Sampling of S5000 waste streams and Solids Sampling of S3000/S4000 waste streams have been evaluated and meet the requirements established in MP-TRUW-8.25, Random Selection of Containers for Headspace Gas and Solids Sampling and Analysis.

Y ☒ N ☐ NA ☐

For "N" or "NA," provide rationale.

Introduction

Advanced Mixed Waste Treatment Project (AMWTP) has compiled Acceptable Knowledge (AK) information for waste stream AMWTP WMF-676 PCB Contaminated Debris (BN600) as required by MP-TRUW-8.1, Certification Plan for INL Transuranic Waste and MP-TRUW-8.2, Quality Assurance Project Plan. [12, 13] In addition, AMWTP has conducted characterization testing and analysis using real-time radiography (RTR), headspace gas sampling and analysis, and radioassay.

Justification for Selection of Radiography and/or VE as an Appropriate Method for Characterizing Waste

The BN600 waste is characterized by RTR or visual examination (VE). The BN600 waste is amenable to using either RTR or VE. Both methods are equally capable of providing qualified personnel the means to examine the waste and meet the data quality objectives (DQOs). VE is an appropriate method for characterizing BN600 waste because it can be accomplished and recorded per the Quality Assurance Project Plan (QAPjP, MP-TRUW-8.2) during packaging of the waste into 55 gallon drums. Radiography is an appropriate method for BN600 waste because it can be readily accomplished per the QAPjP (MP-TRUW-8.2) after the waste is packaged. However, where dense or otherwise impenetrable objects and/or lead shielding create a condition or configuration where examination using radiography will not yield acceptable DQOs, only direct visual examination is appropriate. RTR was performed on the containers in Lot 1 because the waste was already packaged.

The Site Project Manager (SPM) signature certifies that through AK, testing, and/or analysis the waste included in this waste stream is not corrosive, ignitable, reactive, or incompatible with the Treatment, Storage, and Disposal Facility (TSDF) and does not contain any liquids. The AK Summary for this waste stream contains specific information about the corrosivity, reactivity, and ignitability of the waste stream and is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this profile. [1]

Data Results

This Characterization Information Summary (CIS) presents the headspace gas analytical data from all eleven containers included in BN600 waste stream Lot 1. These data meet the necessary characterization requirements for S5000 debris waste. The statistical evaluation of the analytical data collected for BN600, Lot 1 is presented in Tables 1A and 1B. Table 5 lists the correlation of container numbers to characterization data packages. Table 6 lists the RTR/VE summary of prohibited items. Table 7 lists the correlation of container number to headspace gas sample numbers. The data are used to determine the maximum and mean concentrations, standard deviation (SD), and 90% upper confidence level (UCL_{90}) for each volatile compound and to resolve the assignment of EPA HWNs for the BN600 waste stream. Per Section C2-2a of MP-TRUW-8.2, the AMWTP used the data to calculate the UCL_{90} values for the waste stream and assign EPA HWNs as appropriate.

HWNs are assigned based on AK. HWNs assigned by AK are retained for the waste stream even if the headspace gas sampling analytical results for the assigned compounds are not above the program required quantitation limit (PRQL). Acetone and toluene UCL_{90} results are above the PRQL values for constituents associated with the F-listed spent solvent HWNs (Table 1A). HWN F003 for acetone as defined in 40 CFR 261 and addressed in RPT-TRUW-88 is not assigned to the waste because the BN600 waste does not exhibit the characteristic of ignitability. HWN F005 for toluene was assigned by AK. The HWN assignment based on AK for this waste stream includes:

- Toxicity characteristic metals – D004 (arsenic), D005 (barium), D006 (cadmium), D007 (chromium), D008 (lead), D009 (mercury), D010, (selenium), and D011 (silver).
- Toxicity characteristic organics – D022 (chloroform), D027 (1,4- dichlorobenzene), D028 (1,2-dichloroethane), D029 (1,1-dichloroethylene), D030 (2,4-dinitrotoluene), D032 (hexachlorobenzene), D034 (hexachloroethane), D037 (pentachlorophenol), and D043 (vinyl chloride).
- F-Listed HWNs for spent solvents used for cleaning and degreasing , and laboratory operations – F001 (1,1,1- trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, 1,1,2,2-tetrachloro-1,2-difluoroethane, carbon tetrachloride, methylene chloride, tetrachloroethylene, trichloroethylene, and trichlorofluoromethane); F002 (1,1,1- trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, 1,2-dichlorobenzene, chlorobenzene, methylene chloride, tetrachloroethylene, trichloroethylene, and trichlorofluoromethane); F004 (cresols and nitrobenzene); and F005 (2-ethoxyethanol, 2-nitropropane, benzene, carbon disulfide, isobutanol, methyl ethyl ketone, pyridine, and toluene).
- F-Listed HWNs from electroplating operations – F006, F007 and F009 waste generated as a result of contact with electroplating waste.

Headspace sampling results support AK. No additional EPA HWNs are required.

WSPF Number: BN600 Lot Number: 1

Table 1A. Headspace Gas Summary Data.

Analyte	No. of Samples	No. of Samples above MDL [a]	Trans-formation Used [b]	Maxi-mum (ppmv)	Mean (ppmv)	Standard Deviation (ppmv)	UCL_{90} (ppmv)	Trans-formed PRQL	PRQL (ppmv)	EPA Number
Chloromethane [h]	11	0	None	1.30	1.30	0	[c]		10	
Methanol	11	0	None	28.0	28.0	0	[c]		100	
Ethyl ether	11	0	None	0.800	0.800	0	[c]		10	
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0	None	0.950	0.950	0	[c]		10	F001, F002 [e]
1,1-Dichloroethylene	11	0	None	1.05	1.05	0	[c]		10	D029 [e]
Acetone	11	4	None	240	74.5	92.0	113		100	[f]
Methylene chloride	11	0	None	0.650	0.650	0	[c]		10	F001, F002 [e]
trans-1,2-Dichloroethylene	11	0	None	0.750	0.750	0	[c]		10	
1,1-Dichloroethane	11	0	None	0.700	0.700	0	[c]		10	
Methyl ethyl ketone	11	0	None	7.00	7.00	0	[c]	-	100	F005 [e]
Chloroform	11	0	None	0.950	0.950	0	[c]	-	10	D022 [e]
1,1,1-Trichloroethane	11	0	None	1.10	1.10	0	[c]	-	10	F001, F002 [e]
Carbon tetrachloride	11	0	None	1.05	1.05	0	[c]	-	10	F001 [e]
Benzene	11	0	None	0.800	0.800	0	[c]	-	10	F005 [e]
1,2-Dichloroethane	11	0	None	1.25	1.25	0	[c]	-	10	D028 [e]
Butanol	11	0	None	14.0	14.0	0	[c]	-	100	
Trichloroethylene	11	1	None	4.30	1.16	1.04	1.59	-	10	F001, F002 [e]
Methyl isobutyl ketone	11	0	None	9.00	9.00	0	[c]	-	100	
Toluene [d]	11	10	Natural log	3.66	1.99	1.05	2.43	2.30	10	F005 [g]
Tetrachloroethylene	11	0	None	0.750	0.750	0	[c]	-	10	F001, F002 [e]
Chlorobenzene	11	0	None	0.600	0.600	0	[c]	-	10	F002 [e]
Ethyl benzene [d]	11	1	Natural log	1.57	0.047	0.505	0.256	2.30	10	
m- & p-Xylene [d]	11	1	Natural log	2.71	0.150	0.848	0.501	2.30	10	
o-Xylene [d]	11	1	Natural log	1.55	0.045	0.498	0.251	2.30	10	
Bromoform	11	0	None	0.900	0.900	0	[c]	-	10	
1,1,2,2-Tetrachloroethane	11	0	None	1.00	1.00	0	[c]	-	10	
Cyclohexane [i]	11	1	None	3.30	1.16	0.709	1.46	-	10	
Carbon disulfide [d, h]	11	1	Natural log	0.588	-0.271	0.285	-0.153	2.30	10	F005 [e]
1,2,4-Trimethylbenzene [i]	11	0	None	0.900	0.900	0	[c]	-	10	
1,3,5-Trimethylbenzene [i]	11	0	None	0.800	0.800	0	[c]	-	10	

a. When a measurement is reported as below detection, one-half the analysis method detection limit (MDL) is used. Note that the MDL for a given analyte may vary from sample to sample.

b. The Shapiro-Wilk test for normality was applied to data prior to determination of the maximum, mean, SD, and UCL_{90}.

c. The mean and standard deviation presented are the mean and standard deviation of the method detection limits (after dividing by 2). All measurements are below detection; therefore, the upper 90% confidence limit is not calculated.

d. The maximum, mean, SD, UCL_{90}, and PRQL for these analytes are presented as transformed values.

e. The HWNs for these constituents have been applied based on acceptable knowledge.

f. HWN F003 for acetone as defined in 40 CFR 261 and addressed in RPT-TRUW-88 is not assigned to the waste because the BN600 waste does not exhibit the characteristic of ignitability.

g. This HWN, assigned by AK, was supported by characterization. No additional HWNs were added as a result of headspace gas sampling.

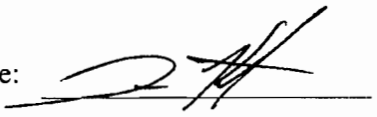
h. Carbon disulfide (CAS No. 75-15-0) and chloromethane (CAS No. 74-87-3) are not target analytes for this waste stream but will be reported because they have been added as a target compound for other waste streams at AMWTP.

i. Cyclohexane (CAS No. 110-82-7), 1,2,4-trimethylbenzene (CAS No. 95-63-6), and 1,3,5-trimethylbenzene (CAS No. 108-67-8) are not target analytes for this waste stream but will be reported because they have been added as target compounds on the Agilent system at the AMWTP.

Did the data support EPA Hazardous Waste Numbers assigned by AK? Yes ✓ No ____

If no, describe the basis for assigning EPA Hazardous Waste Number(s):

Statistics Performed by:

Printed Name: J. Kettel Signature:  Date: 7/21/11

WSPF Number: BN600 Lot Number: 1

Table 1B. Headspace Gas Summary Data – Tentatively Identified Compounds.

Tentatively Identified Compound [a]	Maximum Observed Estimated Concentrations in Waste Stream to Date (ppmv)	No. of Samples Containing TIC in Lot	No. of Containers Sampled in Lot	% Detected in Lot	No of Samples Containing TIC in Waste Stream to Date	No. of Containers Sampled in Waste Stream to Date	% Detected in Waste Stream to Date [b]
1R-α-Pinene	33	1	11	9.1	1	11	9.1
α-Pinene	38	3	11	27	3	11	27
β-Pinene	28	1	11	9.1	1	11	9.1
d-Limonene	28	1	11	9.1	1	11	9.1
Hexane	3100	1	11	9.1	1	11	9.1
Limonene	1700	4	11	36	4	11	36
Methylcyclopentane	600	1	11	9.1	1	11	9.1

Notes:

a) TICs include 1R-α-pinene (CAS 7785-70-8), α-pinene (CAS 80-56-8), β-pinene (CAS 127-91-3), d-limonene (CAS 5989-27-5), hexane (CAS 110-54-3), limonene (CAS 138-86-3), and methylcyclopentane (CAS 96-37-7).

b) The TICs with >25% detections (α-pinene and limonene) are not listed in Appendix VIII of 40 CFR Part 261.

Did the data support EPA Hazardous Waste Numbers assigned by AK? Yes ✓ No _____

If no, describe the basis for assigning EPA Hazardous Waste Number(s):

Calculations performed by:

Printed Name: N. Kirk Signature: Nancy Kirk Date: 7/21/11

Verification of % Detected Calculation:

Printed Name: J. Kettel Signature: [signature] Date: 7/21/11

WSPF Number: BN600 Lot Number: 1

Table 5. Correlation of Container Identification Numbers to Data Package.

Container No.	Headspace Gas Analysis Data Package	RTR Data Package	RA Data Package	VE Data Package [a]	Solid Sampling Data Package [b]	Solid Analysis Data Package [b]
10152444	HS111-00010	RTR11-00170	ASY11-01312	N/A	N/A	N/A
10317287	HS111-00010	RTR11-00170	ASY11-01311	N/A	N/A	N/A
10364365	HS111-00010	RTR11-00170	ASY11-01310	N/A	N/A	N/A
10364368	HS111-00010	RTR11-00170	ASY11-01310	N/A	N/A	N/A
10364369	HS111-00010	RTR11-00170	ASY11-01314	N/A	N/A	N/A
10389379	HS111-00010	RTR11-00170	ASY11-00313	N/A	N/A	N/A
10389380	HS111-00010	RTR11-00170	ASY11-00311	N/A	N/A	N/A
10395487	HS111-00010	RTR11-00081	ASY11-00420	N/A	N/A	N/A
10395696	HS111-00010	RTR11-00170	ASY11-01322	N/A	N/A	N/A
10395697	HS111-00010	RTR11-00086	ASY11-01320	N/A	N/A	N/A
10395698	HS111-00010	RTR11-00170	ASY11-01321	N/A	N/A	N/A

a. VE was not performed on any of the containers in Lot 1
b. WAP solid sampling is not required for S5000 waste

WSPF Number: BN600 Lot Number: 1

Table 6. RTR/VE Summary of Prohibited Items.

Container No.	RTR Prohibited Items [a]	VE Prohibited Items [b]
10152444	None	N/A
10317287	None	N/A
10364365	None	N/A
10364368	None	N/A
10364369	None	N/A
10389379	None	N/A
10389380	None	N/A
10395487	None	N/A
10395696	None	N/A
10395697	None	N/A
10395698	None	N/A

a. See Table 5 for the associated RTR data packages. None of the identified containers contain prohibited items as defined by Section C-1c of the AMWTP Quality Assurance Project Plan, MP-TRUW-8.2.

b. VE was not performed on any of the containers in Lot 1.

WSPF Number: BN600 Lot Number: 1

Table 7. Correlation of Container Numbers to Sample Numbers

Container No.	Headspace Gas Sample Number	Solid Sample Number(s) [a]
10152444	HS111_00010B-17	N/A
10317287	HS111_00010B-07	N/A
10364365	HS111_00010B-03	N/A
10364368	HS111_00010B-06	N/A
10364369	HS111_00010B-09	N/A
10389379	HS111_00010B-08	N/A
10389380	HS111_00010B-10	N/A
10395487	HS111_00010B-01	N/A
10395696	HS111_00010B-15	N/A
10395697	HS111_00010B-16	N/A
10395698	HS111_00010B-11	N/A

a. WAP solid sampling is not required for S5000 waste

Attachment A
Evaluation of Required Number of Samples. BN600 Lot 1

ANALYTE	Number of Samples	Number of Samples above MDL [a]	Trans-formation Used [b]	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	Trans-formed PRQL	PRQL (ppmv)	Required number of samples [c, d, e]	Comments
Chloromethane [h]	11	0	None	1.30	1.30	0	-	-	10		No samples above MDL
Methanol	11	0	None	28.0	28.0	0	-	-	100		No samples above MDL
Ethyl ether	11	0	None	0.800	0.800	0	-	-	10		No samples above MDL
1,1,2-Trichloro-1,2,2-trifluoroethane	11	0	None	0.950	0.950	0	-	-	10		HWNs F001/F002 applied
1,1-Dichloroethylene	11	0	None	1.05	1.05	0	-	-	10		HWN D029 applied
Acetone	11	4	None	240	74.5	92.0	113	-	100		HWN not applied [f]
Methylene chloride	11	0	None	0.650	0.650	0	-	-	10		HWNs F001/F002 applied
trans-1,2-Dichloroethylene	11	0	None	0.750	0.750	0	-	-	10		No samples above MDL
1,1-Dichloroethane	11	0	None	0.700	0.700	0	-	-	10		No samples above MDL
Methyl ethyl ketone	11	0	None	7.00	7.00	0	-	-	100		HWN F005 applied
Chloroform	11	0	None	0.950	0.950	0	-	-	10		HWN D022 applied
1,1,1-Trichloroethane	11	0	None	1.10	1.10	0	-	-	10		HWNs F001/F002 applied
Carbon tetrachloride	11	0	None	1.05	1.05	0	-	-	10		HWN F001 applied
Benzene	11	0	None	0.800	0.800	0	-	-	10		HWN F005 applied
1,2-Dichloroethane	11	0	None	1.25	1.25	0	-	-	10		HWN D028 applied
Butanol	11	0	None	14.0	14.0	0	-	-	100		No samples above MDL
Trichloroethylene	11	1	None	4.30	1.16	1.04	1.59	-	10		HWNs F001/F002 applied
Methyl isobutyl ketone	11	0	None	9.00	9.00	0	-	-	100		No samples above MDL
Toluene	11	10	Natural log	3.66	1.99	1.05	2.43	2.30	10	10	HWN F005 applied
Tetrachloroethylene	11	0	None	0.750	0.750	0	-	-	10		HWN F001/F002 applied
Chlorobenzene	11	0	None	0.600	0.600	0	-	-	10		HWN F002 applied
Ethyl benzene	11	1	Natural log	1.57	0.047	0.505	0.256	2.30	10		HWN not required to be applied [g]
m- & p-Xylene	11	1	Natural log	2.71	0.150	0.848	0.501	2.30	10		HWN not required to be applied [g]

Attachment A
Evaluation of Required Number of Samples. BN600 Lot 1

ANALYTE	Number of Samples	Number of Samples above MDL [a]	Trans-formation Used [b]	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	Trans-formed PRQL	PRQL (ppmv)	Required number of samples [c, d, e]	Comments
o-Xylene	11	1	Natural log	1.55	0.045	0.498	0.251	2.30	10		HWN not required to be applied [g]
Bromoform	11	0	None	0.900	0.900	0	-	-	10		No samples above MDL
1,1,2,2-Tetrachloroethane	11	0	None	1.00	1.00	0	-	-	10		No samples above MDL
Cyclohexane [i]	11	1	None	3.30	1.16	0.709	1.46	-	10		No associated HWN
Carbon disulfide [h]	11	1	Natural log	0.588	-0.271	0.285	-0.153	2.30	10		HWN F005 applied
1,2,4-Trimethylbenzene [i]	11	0	None	0.900	0.900	0	-	-	10		No samples above MDL
1,3,5-Trimethylbenzene [i]	11	0	None	0.800	0.800	0	-	-	10		No samples above MDL

a. When a measurement is reported as below detection, one-half the analysis method detection limit (MDL) is used. Note that the MDL for a given analyte may vary from sample to sample.

b. The Shapiro-Wilk test for normality was applied to data prior to determination of maximum, mean, SD, and UCL_{90}.

c. If there are no samples above the MDL for a given analyte, then that analyte will not be used to define the number of required samples.

d. If the calculated sample size is less than 10, then the number of required samples is set to the program-defined minimum of 10.

e. The required number of samples for VOCs listed in Table 4.4.1of the WIPP Hazardous Waste Facility Permit was calculated using equation A-8 in MP-TRUW-8.25.

f. HWN F003 for acetone as defined in 40 CFR 261 and addressed in RPT-TRUW-88 is not assigned to the waste because the BN600 waste does not exhibit the characteristic of ignitability.

g. The HWN for characteristic or listed hazardous waste is not assigned based on AK, and the UCL_{90} result for the waste stream and lot is below the PRQL.

h. Carbon disulfide (CAS No. 75-15-0) and chloromethane (CAS No. 74-87-3) are not target analytes for this waste stream but will be reported because they have been added as a target compound for other waste streams at AMWTP.

i. Cyclohexane (CAS No. 110-82-7), 1,2,4-trimethylbenzene (CAS No. 95-63-6), and 1,3,5-trimethylbenzene (CAS No. 108-67-8) are not target analytes for this waste stream but will be reported because they have been added as target compounds on the Agilent system at the AMWTP

Acceptable Knowledge Summary for AMWTP WMF-676 PCB Contaminated Debris (BN600)

Advanced Mixed Waste Treatment Project

Eric Stinnette for ET
Enrique Torres
TRU Programs Manager

7/21/11
Date

Advanced Mixed Waste Treatment Facility

Acceptable Knowledge Summary for AMWTP WMF-676 PCB Contaminated Debris (BN600)

REVISION LOG

Revision Number	Date Approved	Pages Affected	Description of Revision
0F	TBD	All	DCR-10156. Initial issue. Document created to support new direct ship PCB Waste Stream Profile Form for WIPP.

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TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

AK	acceptable knowledge
AMWTF	Advanced Mixed Waste Treatment Facility
AMWTP	Advanced Mixed Waste Treatment Project
ATWIR	Annual Transuranic Waste Inventory Report
BC	Battelle Columbus Laboratory
CCP	Central Characterization Project
CFR	Code of Federal Regulations
CH-TRAMPAC	Contact-Handled Transuranic Waste Authorized Methods for Payload Control
DIEG	Drum Import/Export Glovebox
DOT	U.S. Department of Transportation
DWPG	drummed waste packaging glovebox
EPA	U.S. Environmental Protection Agency
HSG	headspace gas
HWD	hazardous waste determination
HWMA	Hazardous Waste Management Act
HWN	hazardous waste number
IDC	item description code
MD	Mound
NWPA	Nuclear Waste Policy Act
OSHA	Occupational Safety and Health Administration

PCB	polychlorinated biphenyl
PI	prohibited item
PPE	Personnel protection equipment
ppm	parts per million
PRQL	Program-Required Quantitation Limit
RCRA	Resource Conservation and Recovery Act
RF	Rocky Flats
RFETS	Rocky Flats Environmental Technology Site (formerly Rocky Flats Plant)
RFP	Rocky Flats Plant
RL	Richland, Washington
RTR	real-time radiography
S/C	Supercompactor
SCW	special-case waste
SDOP	six drum overpack
SWB	standard waste boxes
TRU	transuranic
TSCA	Toxic Substance Control Act
VE	visual examination
VOC	volatile organic compound
WAC	Waste Acceptance Criteria
WAP	Waste Analysis Plan
WIPP	Waste Isolation Pilot Plant
WMC	Waste Matrix Code
WMF	Waste Management Facility
WMP	Waste material parameter
WSPF	Waste Stream Profile Form
WTS	Waste Tracking System

Advanced Mixed Waste Treatment Facility

Acceptable Knowledge Summary for AMWTP WMF-676 PCB Contaminated Debris (BN600)

1.0 WASTE STREAM DESCRIPTION

1.1 Waste Stream Number

BN600

1.2 Basic Waste Stream Information

1.2.1 Waste Stream Name

Advanced Mixed Waste Treatment Project (AMWTP) Waste Management Facility (WMF)-676 Polychlorinated Biphenyl (PCB) Contaminated Debris (BN600)

1.2.2 Point of Generation

Advanced Mixed Waste Treatment Facility (AMWTF), Building WMF-676[(2)]

1.2.3 Waste Stream Volume

Current Volumes:

26, 55 gallon drums (5.4 m^3) [(2)(36)(49)]

Projected Volumes:

719 55-gallon drums (149.6 m^3) [(2)(36)(49)]

All containers within this waste stream will be greater than100 nCi/g. Each payload container shipped to Waste Isolation Pilot Plant (WIPP) will be certified as containing more than 100 nCi/g TRU activity.[(10)((22))]

1.2.4 Generation Dates

The waste generation timeframe is from 2005 through 2018.[(2)]

1.2.5 TRU Waste Content Codes

ID 125/225[(3)]

1.2.6 Waste Isolation Pilot Plant Waste Stream ID

Waste Stream ID: IN-BN600

1.2.7 Summary Category Group

S5000—Debris Waste[(14)]

1.2.8 Waste Matrix Code Group

Heterogeneous Debris Waste[14]

1.2.9 Waste Matrix Code

S5490 –Unknown/Other Heterogeneous Debris[14]

This Waste Matrix Code (WMC) includes waste that is estimated to contain a minimum of 50% by volume of heterogeneous debris waste that does not meet the criteria for assignment into any of the S5410, S5420, S5440, S5450, or S5460 specific-detailed categories.[4]

1.2.10 Description from the Annual Transuranic Waste Inventory Report

This waste is currently not in the Annual Transuranic Waste Inventory Report (ATWIR).[12] The following information will be added to the ATWIR during the 2012 data call. The ATWIR waste stream ID will be IN-BN600.

AMWTP WMF-676 PCB contaminated debris is generated as a result of removing and/or treating prohibited PCB waste within the AMWTF WMF-676 north and south box lines and the drummed waste packaging glovebox (DWPG) and special-case waste (SCW) areas.

1.2.11 AMWTP Defense Related Determination

The BN600 waste is generated in support of AMWTP processing of defense related waste for shipment to WIPP.

The WMF-676 is the treatment facility at the AMWTP. It includes the AMWTP supercompactor, box line, and shredding/sizing operations. The AMWTF conducts prohibited item (PI) removal and/or treatment within designated areas (e.g., north and south box lines, DWPG and SCW).

The BN600 waste is generated during the removal and/or treatment of PCB prohibited waste from RF organic setups waste and supercompactor feedstock within WMF-676. The Rocky Flats (RF) organic setups waste and supercompactor feedstock are defense related wastes.

The supercompactor feedstock waste includes wastes that were generated at the RF, Mound (MD), Battelle Columbus (BC), and Hanford (RL). The AMWTP supercompactor feedstock waste and RF organic setups waste were generated from defense related processes or activities. The waste within this waste stream was generated primarily from weapons activities. Other defense activities that may contribute to waste in this stream are from defense research and development and defense nuclear material production.[13][52][53][54]

RF organic setups waste has been profiled to WIPP by Rocky Flats Environmental Technology Site (RFETS) under WIPP-approved Waste Stream Profile Form (WSPF)-RF-135.01 and by the Central Characterization Project (CCP) under WIPP-approved WSPF ID-RF-S3114. CCP is currently shipping ID-RF-3114 waste to WIPP for disposal. RF organic setups waste is defense related waste [i.e., previously associated with defense weapons activities at the Rocky Flats Plant (RFP)][5][27][28]

Advanced Mixed Waste Treatment Facility

Acceptable Knowledge Summary for AMWTP WMF-676 PCB Contaminated Debris (BN600)

The AMWTP supercompactor waste stream and its debris feedstock waste are covered under WIPP-approved WSPF BN510.1 and currently being shipped to WIPP for disposal. The supercompactor feedstock debris waste and resulting compacted debris waste are defense related wastes.[26]

There are no historical records or evidence that the supercompactor feedstock from RF, MD, RL, and BC facilities or the RF organic setups waste includes any spent nuclear fuel or high level waste. The AMWTP does not generate high level waste or accept high level waste from off-site generators.[5]

As outlined in the 1997 interim guidance on ensuring that waste qualifies for disposal at WIPP and the 1996 guidance on determining defense waste, TRU waste is eligible for disposal at WIPP, if it has been generated in whole or part by one of the atomic energy defense activities listed in the Nuclear Waste Policy Act of 1982 (NWPA) and is not high level or spent nuclear fuel. The interim guidance also includes defense and non-defense wastes that were inadvertently mixed (in the past) and from which the non-defense portion cannot be segregated.[6][7][15][18][19]

The BN600 waste is not spent nuclear fuel or high level waste. The TRU wastes included in the BN600 WSPF meet the definition of defense-related waste.[5][26][27][28]

1.3 Waste Stream Description

1.3.1 Description

The BN600 waste is PCB contaminated heterogeneous debris waste generated during the removal and/or treatment of PCB prohibited waste within WMF-676. The waste includes: PCB electrical equipment (e.g., capacitors, ballast, transformers), PIG® mats/blankets/pillows, size-reduced drum liners and empty containers, personal protective equipment (PPE), wipes, and supercompactor (S/C) feedstock debris that is contaminated due to PCB spills (e.g., paper and rags; gloves; wipes; asbestos; PPE; plastic and rubber items; filters; leaded gloves, aprons, bricks, and sheeting; metal with and without lead or cadmium; floor tiles, piping, sheet rock, insulation, and glass; Raschig rings; crucibles; fire brick; wood; Plexiglas®; Benelex®; pieces of equipment and tools; graphite; grit; and asphalt and concrete).[2][14][36]

Minor amounts of soils/gravels and homogenous solid waste (e.g., RF organic setups residuals , Oil-Dri®, vermiculite, Aquaset®, Aquaset II-G®, Petroset II®, Petroset II-G®, Micro-Cel® E) may be present within the BN600 waste containers. Non-debris waste will comprise less than 50% by volume of the waste within each container.[2]

The BN600 waste meets the definition of a WIPP waste stream in that the materials within this waste stream have common physical form, contain similar hazardous constituents and are generated from a single process or activity (i.e., remediating PCB prohibited waste within WMF-676).[20][21]

Table 1. Waste Form Description for BN600 waste.

ATWIR Number[a]	IDC[14]	WMC[14]	Description[14]
IN-BN600	BN-600	S5490	WMF-676 PCB contaminated debris

a. There is currently no ATWIR number for this waste stream. The proposed ATWIR number will be provided for inclusion into the ATWIR at the 2012 data call.

1.4 Process Description

1.4.1 Areas of Operation

BN600 waste is generated as secondary debris waste within the AMWTP WMF-676. (2)(31)(34)(35)(36)(38)(39)(47)(48)

1.4.2 Process Flow Description and Diagrams

Figure 1 provides a process flow diagram for BN600 waste.

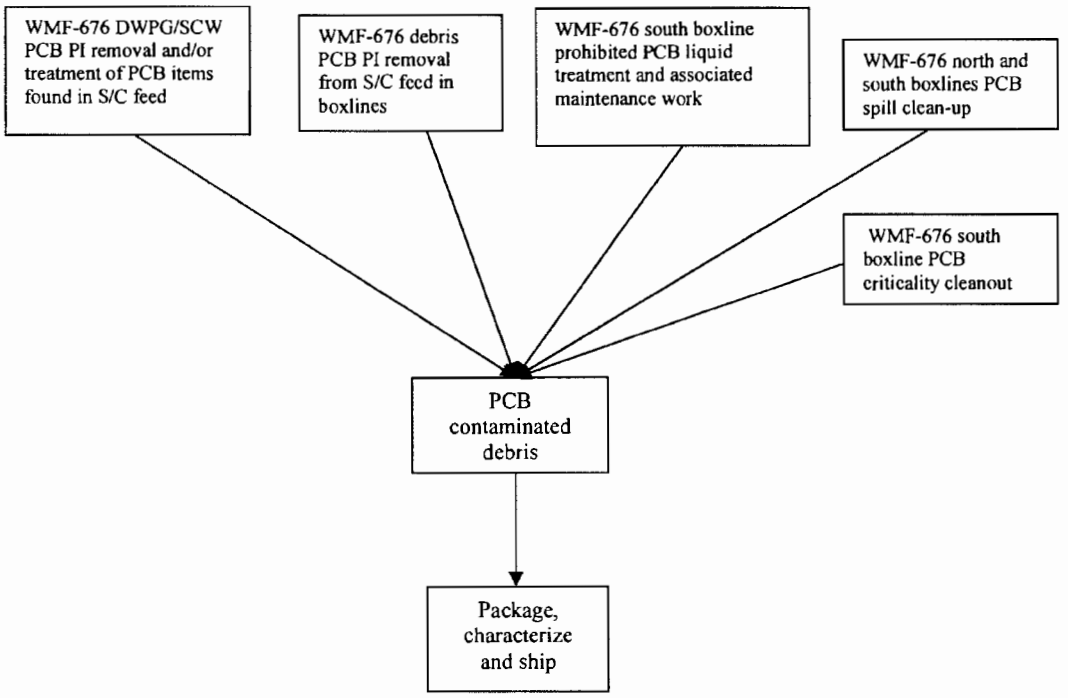

Figure 1: Process flow diagram for BN600.

1.4.3 Waste Generating Process

BN600 waste is generated within WMF-676 during removal and/or treatment of prohibited PCB waste (e.g., PCB items from S/C feed and PCB liquids within RF organic setups). The WIPP and the AMWTP supercompactor facilities prohibit various forms of PCB waste. Waste containers with any amount of PCB liquid are prohibited at the WIPP facility. The AMWTP supercompactor prohibits waste with PCB concentrations equal to or greater than 50 parts per million (ppm) PCBs from being compacted.

Secondary debris is generated from two primary sources of PCB waste:

1. Authorized debris feedstock to the AMWTP supercompactor.
2. Treating Rocky Flats PCB contaminated organic setups (S3114).

PCB prohibited waste is periodically found in the supercompactor feedstock during VE or RTR. Feedstock debris is comprised of authorized debris waste from MD, RF, BC and RL as noted in the WIPP-approved WSPF BN510.1.[30]

Any debris feedstock IDC has the potential to contain a PCB item. The following authorized supercompactor feedstock IDCs have been identified as sources of PCB debris items based on RTR and/or AK: RF-302 Benelex® and Plexiglas®, RF-320 Heavy Non-special Source Metal, RF-330 Paper and Rags-Dry, RF-336 Paper and Rags-Moist,, RF-371 Fire Brick, RF-440 Glass, RF-480 Scrap Metal (Non SS),RF-481 Leached Metals (Non SS), RF-490 High efficiency particulate air (HEPA) Filters and CWS Filters, RL-712 Hanford Plutonium Finishing Plant Debris, RL-714 Hanford Radiochemical Processing Lab 325 Bldg Debris, RL-716 Hanford 231-Z Building Debris, MD-847 LSA <100 nCi/g Combustible, MD-848- LSA <100 nCi/g Non-Combustible, RF-950 LSA Metal, Glass, etc. RF-960 Concrete, Asphalt, etc, and RF-970 Wood.[14]

PCB contaminated debris is also generated as a result of treating Rocky Flats organic setup waste.[28]

WMF-676 RF Organic Setups Prohibited PCB Liquid Treatment

Containers of RF organic setups wastes with prohibited PCB liquids are loaded into six drum overpacks (SDOPs) for transport to the AMWTP WMF-676 south box line. To remove the organic setups wastes for treatment, the containers may be cut open by the BROKK®. The waste in the bags is removed from the liners and placed in the south box line trough for treatment. The drums and liners are segregated from the waste and undergo size reduction.[47][48]

Prior to treating RF organic setups waste within the south box line, a transfer container with a new drum liner is brought into the south box line. Treated RF organic setups waste is placed in the drum liner within the transfer container and moved to the Drum Import/Export Glovebox (DIEG). At the DIEG the drum liner is removed from the transfer container and placed into a new 55-gallon drum for export from the treatment facility. The empty transfer container is lined with a new drum liner and moved back to the south box line for loading with RF organic setups. The process is repeated as necessary.[47][48]

WMF-676 Prohibited PCB Item Removal in the Box Lines

Boxes and SDOPs of authorized debris feedstock to the supercompactor are transported into the north and south box lines. SDOPs contain 55-gallon and/or 83-gallon drums of debris waste. The south box line will not receive debris waste while treating the organic setups wastes. The debris waste containers are dumped into the box line trough(s) and are visually examined (VE) for WIPP and AMWTP supercompactor PIs. WIPP and AMWTP supercompactor prohibited PCB items (e.g., PCB ballast, PCB capacitors) identified in the box lines are removed/segregated from the box line trough and managed separately to prevent compaction and possible PCB contamination of the supercompactor.[24][31]

If PCB items are breached and/or leaking within a box line trough, the PCB items and all debris feedstock materials that contacted the PCB waste is removed from the trough and the trough area is decontaminated. If required, PCB items removed from the box line may be transported to special-case waste (SCW) for further treatment and repackaging.[31][38]

WMF-676 Prohibited PCB Item Removal/Treatment in the WMF-676 DWPG or SCW

PCB liquids are prohibited at WIPP and PCBs greater than 50 ppm are prohibited from being processed in the AMWTP supercompactor.[29] Direct feed 55-gallon authorized debris feedstock to the supercompactor found to contain prohibited PCB items during real-time radiography (RTR) examination may be transported directly to WMF-676 DWPG or SCW for removal/segregation of the items and/or treatment of the PCB waste. PCB items removed from the box line may be transported to the SCW for further treatment and repackaging.[23][38][39]

WMF-676 Criticality Cleanout of South Box Line

Criticality cleanout of the WMF-676 south box line is conducted periodically during PCB treatment of RF organic setups wastes.

Established criticality controls require criticality cleanout operations to remove RF organic setups residuals within the south boxline between RF organic setups batches.

When applicable, RF organic setups residuals are either manually (swept up, scrapped, wiped) or remotely removed (i.e., BROKK®) between RF organic setups batches. RF organic setups residuals are removed to less than 3liter volume limit in order to reduce the probability of a criticality accident during the lifetime of operations.

WMF-676 PCB Spill Cleanup

Spills of PCB waste may occur within the WMF-676 north or south box line areas, the WMF-676 DWPG, and the WMF-676 SCW during removal and/or treatment of PCB contaminated waste. Spill cleanup will include removal of the spilled material and decontamination of the area. The spilled PCB liquid and all other waste material (e.g., secondary waste) in contact with PCB waste are removed and containerized. PIG® mats/blankets/pillows may be used during spill response to absorb PCB liquids. Aquaset®, Aquaset II-G®, Petroset II®, Petroset II-G®, or Micro-Cel® E may also be used in limited amounts to absorb prohibited liquids within containers.[2][16][32][34][35][36][37][40]

WMF-676 PCB decontamination involves a double-wash/-rinse and swipe sampling of the spill area.

Non-hazardous Sunrise® Exeter and Simple Green® cleaning solutions are used for decontaminating PCB contaminated areas. An optional decontamination step may include the use of acetone or hexane. Following decontamination activities, a wipe saturated with hexane is used to swipe a 100 cm^2 area of the decontaminated area, and the swipe sample is analyzed for PCB content by the onsite laboratory to verify that PCB cleanup standards are met.[34][35][36][41][42][43][44]

WMF-676 South Box Line Equipment Maintenance

The south box line equipment (e.g., BROKK® manipulator) used to cut open containers, size reduce liners and containers, mix absorbents and load treated RF organic setups wastes into new containers is assumed to be PCB contaminated. Periodically, personnel enter the south box line and perform maintenance as required on this equipment to ensure optimum operating functions (e.g., replacement of parts, oil changes, repair of the BROKK®, etc). Decontamination may also be conducted

on the equipment during maintenance work. PCB contaminated debris is generated during maintenance and decontamination of equipment.[35][36]

1.4.4 Material Inputs

BN600 waste generated during removal and treatment of PCB contaminated waste include: PCB electrical equipment (e.g., capacitors, ballast, transformers), PIG® mats/blankets/pillows, size-reduced drum liners and empty containers, personnel protection equipment (PPE), wipes, and S/C feedstock debris that is contaminated due to PCB spills (e.g., paper and rags; gloves; wipes; asbestos; PPE; plastic and rubber items; filters; leaded gloves, aprons; bricks and sheeting; metal with and without lead or cadmium; floor tiles; piping sheet rock, insulation, and glass; Raschig rings; crucibles; fire brick; wood; Plexiglas®; Benelex®; pieces of equipment and tools; graphite; grit; and asphalt and concrete).[2][14][36]

Non-hazardous absorption agents: Aquaset®, Aquaset II-G®, Petroset II®, Petroset II-G® or Micro-Cel® E may be added to the waste to immobilize by absorption prohibited PCB liquids. PIG® mats/blankets/pillows may be used in PCB liquid spill cleanup responses.[16][32][36][37][47]

Non-hazardous decontamination solutions Sunrise® Exeter and Simple Green® are used during initial wash steps of PCB decontamination. Acetone and hexane may be used to wipe/rinse PCB spill areas as a final decontamination step. Hexane is used during swipe sampling to verify that PCB cleanup standards are met.[34][35][41][42][43][44]

Minor amounts of non-debris waste may be present within the BN600 waste containers. Each container within this waste stream will contain greater than 50% PCB contaminated heterogeneous debris waste.[2][14]

Chemical and material inputs associated with BN600 wastes are identified in Table 2.

Table 2. Chemical/material inputs associated with the BN600 waste.

Chemical/Material Inputs	Source and/or Use
1,1,1-Trichloroethane [1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon)[1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
1,1,2,2-Tetrachloro-1,2-difluoroethane[1]	S/C feedstock contaminant.[30][36]
1,1-Dichloroethylene[1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
1,2-Dichlorobenzene[1]	S/C feedstock, RF organic setups contaminant.[28][30][36]
1,2-Dichloroethane [1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
1,4-Dichlorobenzene[1]	S/C feedstock contaminant, RF organic setups contaminant.[28][30][36]
2-Ethoxyethanol[1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
2-Nitropropane[1]	S/C feedstock contaminant.[30][36]
2,4–Dinitrotoluene[1]	S/C feedstock contaminant, RF organic setups contaminant.[28][30][36]

Advanced Mixed Waste Treatment Facility

Acceptable Knowledge Summary for AMWTP WMF-676 PCB Contaminated Debris (BN600)

Chemical/Material Inputs	Source and/or Use
Acetone[1]	S/C feedstock contaminant and RF organic setups contaminant. Performing PCB decontamination of spill areas. [28][30][36]
Arsenic[1]	S/C feedstock contaminant [30]
Asbestos	S/C feedstock [30]
Barium[1]	S/C feedstock contaminant [30]
Benzene[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]
Beryllium[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]
Cadmium[1]	S/C feedstock contaminant. [30][36]
Carbon disulfide[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]
Carbon tetrachloride[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]
Chromium[1]	S/C feedstock contaminant. [30][36]
Chloroform[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]
Chlorobenzene[1]	S/C feedstock contaminant[30][36]
Cresols[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]
Cyclohexane[1]	S/C feedstock contaminant.[30][36]
Electroplating waste (electroplating sludge, cyanide plating and cleaning bath) [1]	S/C feedstock contaminant.[30][36]
Ethyl benzene[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]
Ethyl ether[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]
Hexachlorobenzene[1]	RF Organic setups contaminant.[28] [36]
Hexachloroethane[1]	S/C feedstock contaminant, RF organic setups contaminant. [28][30][36]
Hexane[1]	Performing PCB decontamination and swipe sampling. [36]
Hydrofluoric acid	S/C feedstock contaminant. [30]
Isobutanol[1]	S/C feedstock contaminant. [30][36]
Lead[1]	S/C feedstock contaminant. [30][36]
Mercury[1]	S/C feedstock contaminant. [30][36]
Methanol[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30]
Methyl ethyl ketone[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]
Methyl isobutyl ketone[1]	S/C feedstock contaminant [30]
Methylene chloride[1]	S/C feedstock contaminant and RF organic setups contaminant. [28][30][36]

Chemical/Material Inputs	Source and/or Use
n-Butyl alcohol (butanol)[1]	S/C feedstock contaminant, RF organic setups contaminant.[28][30]
Nitrobenzene[1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
Pentachlorophenol[1]	S/C feedstock contaminant, RF organic setups contaminant[28][30][36]
Pyridine[1]	S/C feedstock contaminant, RF organic setups contaminant.[28][30][36]
Selenium[1]	S/C feedstock contaminant.[30][36]
Silver[1]	S/C feedstock contaminant.[30][36]
Tetrachloroethylene[1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
Trichlorofluoromethane[1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
Toluene[1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
Trichloroethylene[1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
Vinyl chloride[1]	S/C feedstock contaminant[30][36]
Xylene[1]	S/C feedstock contaminant and RF organic setups contaminant.[28][30][36]
Micro-Cel E®[36]	WMF-676 prohibited liquid absorption of organic liquids[47][36]
PIG® mats/blankets/pillows[36]	Spill clean-up[36]
PCB contaminated items (See material inputs above)[36]	WMF-676 prohibited item treatment and removal[36]
Sunrise® Exeter cleaning solutions[36]	Performing PCB decontamination of spill areas[36]
Simple Green® cleaning solutions[36]	Performing PCB decontamination of spill areas[36]

1.4.5 Waste Material Parameters

To estimate the waste material parameters (WMPs) weight percentages for the BN600 waste, WMP data for 26 containers of item description code (IDC) BN-600 with completed RTR data were obtained from the AMWTP Waste Tracking System (WTS) database that were examined as of 5/18/11. This population represents 100% of the existing inventory (26 out of 26) and 3% of the estimated number of drums for this waste stream (i.e., 26 out of 745 drums). Eleven (11) drums of the available 26 drums included in Lot 1 have been characterized by RTR and their data are included in the overall WMP calculations. Drums used to calculate WMPs are representative of the waste stream. The estimated WMP weights (by percent) for the BN600 waste, excluding drum packaging, were calculated in accordance with the requirements of MP-TRUW-8.13, Collection, Review and Management of Acceptable Knowledge Documentation. These weight percentages are summarized in Table 3.[8][20][23]

Table 3. Waste material parameters for BN600 waste

Waste Material Parameters	Estimated Percent WMP Weight/Unit Waste
Iron-based metals/alloys	62%
Aluminum-based metals/alloys	<1%
Other metals	4%
Other inorganic materials	2%
Cellulosics	3%
Rubber	0%
Plastics (waste materials)	29%
Inorganic matrix	0%
Organic matrix	0%
Soils/gravel	0%

1.5 Acceptable Knowledge Sufficiency Determination

No acceptable knowledge (AK) sufficiency determinations apply to this waste stream.

1.6 Waste Prohibited at the WIPP Facility

The following wastes are prohibited at WIPP and therefore will not be shipped to the WIPP facility for disposal. The listed prohibited conditions are in accordance with MP-TRUW-8.1, Certification Plan for INL Transuranic Waste and MP-TRUW-8.2, Quality Assurance Project Plan.[21][22]

- Liquid waste and observable liquid containing PCBs.
- Sealed containers greater than 4 liters.
- Non-radionuclide pyrophoric materials.
- Hazardous wastes not occurring as co-contaminants with TRU mixed wastes.
- Wastes incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes.
- Wastes containing explosives or compressed gases.
- Wastes with PCBs not authorized under an Environmental Protection Agency (EPA) PCB waste disposal authorization.
- Wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (Hazardous Waste Numbers [HWNs] D001, D002, or D003).

- Waste that has ever been managed as high-level waste and waste from tanks specified in Table C8 of MP-TRUW-8.2, Quality Assurance Project Plan, unless specifically approved though a WIPP Class 3 permit modification.

AMWTP Waste Services hazardous waste determinations (HWD), AMWTP packaging procedures, AMWTP RTR or VE procedures are used to support the absence of prohibited items for newly generated waste. Containers with WIPP prohibited observable liquids will be treated using non-hazardous absorption agents (e.g., Aquaset®, Aquaset II-G®, Petroset II®, Petroset II-G® or Micro-Cel® E) to render the waste acceptable prior to shipment.[16][23][24][32][33][36][40][51]

Drums containing WIPP prohibited items will not be shipped to WIPP.[21][22]

1.7 Resource Conservation and Recovery Act (RCRA) Determination

The BN600 waste is (and has been) subject to the state of Idaho Hazardous Waste Management Act (IIWMA)/RCRA requirements (e.g., 40 CFR 264 and 40 CFR 265) and are currently being managed under the AMWTP RCRA permitting requirements until they are shipped off-site.[17][29]

1.7.1 EPA Hazardous Waste Numbers

The following HWNs are assigned to BN600 waste: D004, D005, D006, D007, D008, D009, D010, D011, D022, D027, D028, D029, D030, D032, D034, D037, D043, F001, F002, F004, F005, F006, F007 and F009.[1][2][36]

The BN600 waste is generated during the removal and/or treatment of PCB prohibited waste from RF organic setups waste (ID-RF-S3114) and supercompactor feedstock (BN510.1). The HWNs assigned to BN600 waste are derived from the compilation of the HWNs assigned to the RF organic setups waste and supercompactor feedstock. Table 4 identifies the HWNs associated with the two WIPP-approved WSPFs as well as the AMWTP HWNs assigned to this waste stream.[26][28][36]

Table 4. HWN assigned by waste stream.

Constituent	ID-RF-S3114[28]	BN510.1[26]	BN600[36]
Toxicity Characteristic Metal Compounds			
Arsenic	-	D004	D004
Barium	-	D005	D005
Cadmium	-	D006	D006
Chromium	-	D007	D007
Lead	-	D008	D008
Mercury	-	D009	D009
Selenium	-	D010	D010
Silver	-	D011	D011
Toxicity Characteristic Organic Compounds			
Chloroform	D022	D022	D022

Constituent	ID-RF-S3114[28]	BN510.1[26]	BN600[36]
Cresol	D026	-	[a]
1,4-Dichlorobenzene	D027	D027	D027
1,2-Dichloroethane	D028	D028	D028
1,1-Dichloroethylene	D029	D029	D029
2,4-Dinitrotoluene	D030	D030	D030
Hexachlorobenzene	D032	-	D032
Hexachloroethane	D034	D034	D034
Nitrobenzene	D036	-	[a]
Pentachlorophenol	D037	D037	D037
Vinyl chloride	-	D043	D043
F-Listed Organic Solvents			
1,1,1-Trichloroethane	F001and F002	F001and F002	F001and F002
1,1,2-Trichloro-1,2,2-trifluoroethane	F002	F001and F002	F001and F002
1,1,2,2-Tetrachloro-1,2-difluoroethane	-	F001	F001
1,2-Dichlorobenzene	F002	F002	F002
Carbon tetrachloride	F001	F001	F001
Chlorobenzene	-	F002	F002
Methylene chloride	F002	F001and F002	F001and F002
Tetrachloroethylene	F002	F001and F002	F001and F002
Trichloroethylene	F002	F001and F002	F001and F002
Trichlorofluoromethane	F001and F002	F001and F002	F001and F002
Cresols	-	F004	F004
Nitrobenzene	-	F004	F004
2-Ethoxyethanol	F005	F005	F005
2-Nitropropane	-	F005	F005
Benzene	F005	F005	F005
Carbon disulfide	F005	F005	F005
Isobutanol	-	F005	F005
Methyl ethyl ketone	F005	F005	F005
Pyridine	F005	F005	F005
Toluene	F005	F005	F005
Other F-Listed Wastes			
Wastewater treatment sludges from electroplating operations	-	F006	F006

Constituent	ID-RF-S3114[28]	BN510.1[26]	BN600[36]
Spent cyanide plating bath solutions from electroplating operations	-	F007	F007
Spent stripping and cleaning bath solutions from electroplating operations	-	F009	F009

a. D026 and D036 are not assigned; they are addressed under the EPA HWN F004.

1.7.2 Hazardous Waste Determination

1.7.2.1 Historical Management

The wastes that comprise this waste stream are newly generated. HWNs initially or historically assigned to the wastes are the same as the current HWN assignments.[1]

The wastes that comprise this waste stream have historically been managed as mixed TRU waste at the AMWTP and are currently classified by AMWTP AK as mixed TRU waste based on RCRA mixture and/or derived from rules.[1][2][36]

1.7.2.2 Ignitability

The materials in this waste stream do not meet the 40 CFR 261.21, definition of ignitability. Hexane and acetone may be used during the final decontamination of PCB spill areas. PCB contaminated hexane and acetone rags/wipe are included in BN600 wastes.

The BN600 waste is not a liquid, an ignitable compressed gas, or an oxidizer. If found, WIPP prohibited PCB liquids will be removed or undergo treatment (absorption) prior to WIPP shipment/disposal. Containers that are identified as having prohibited liquids will be treated using Aquaset®, Aquaset II-G®, Petroset II®, Petroset II-G® or Micro-Cel® E absorbents to ensure that the waste is acceptable for disposal at WIPP. The waste is not compressed gas and does not contain compressed gas. The BN600 waste does not meet the U.S. Department of Transportation (DOT) definition of an oxidizer as defined in 49 CFR 173, Shippers—General Requirements for Shipments and Packagings. Finally, the waste is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. BN600 waste does not exhibit the characteristic of ignitability (D001).[1][36]

1.7.2.3 Corrosivity

The materials in this waste stream do not meet the 40 CFR 261.22, definition of corrosivity. BN600 waste is not liquid waste and does not contain WIPP prohibited PCB liquids. Containers that are identified as having prohibited PCB liquids will be treated using Aquaset®, Aquaset II-G®, Petroset II®, Petroset II-G® or Micro-Cel® E absorbents to ensure that the waste is acceptable for disposal at WIPP. BN600 waste does not exhibit the characteristic of corrosivity (D002).[1][36]

1.7.2.4 Reactivity

The waste materials in this waste stream do not meet the 40 CFR 261.23, definition of reactivity. BN600 waste is not a liquid waste. Any containers that are identified as having prohibited PCB liquids will be treated using Aquaset®, Aquaset II-G®, Petroset II®, or Petroset II-G®, or Micro-Cel® E absorbents to ensure that the waste is acceptable for disposal at WIPP. BN600 waste is stable and will not undergo violent chemical change, react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The waste does not contain sulfide waste which, when exposed to a pH between 2 and 12.5 can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment. The waste is not capable of detonation or explosive reaction if subjected to a strong initiating source if heated under confinement. The waste is not readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure. The waste does not contain explosive material and is not forbidden explosives or Division 1.1, 1.2, or 1.3 (Class A or B) explosives as defined in 49 CFR 173. Although the waste is assigned F006, F007, and F009 listed HWNs (associated with cyanide electroplating operations), the waste when exposed to a pH between 2 and 12.5 will not generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment. The BN600 waste does not exhibit the characteristic of reactivity (D003).[1][36]

1.7.2.5 Toxicity Characteristic

The material in this waste stream exhibits the toxicity characteristic for metals and organics.

The RCRA toxicity characteristic metals and organics assigned to this waste stream are: D004 through D011, D022, D027, D028, D029, D030, D032, D034, D037, and D043.[1][36]

Prior profiling of the AMWTP supercompacted debris waste stream (i.e., BN510.1) resulted in the assignment of the following RCRA toxicity characteristic metal HWNs D004 (arsenic), D005 (barium), D006 (cadmium), D007 (chromium), D008 (lead), D009 (mercury), D010 (selenium), and D011 (silver). These HWNs are assigned to the BN600 waste.[1][29][36]

There is no AK documentation indicating past or current presence/use of pesticides or herbicides that would have contaminated this waste stream. Therefore BN600 waste does not exhibit the toxicity characteristic due to pesticides or herbicides (D012–D017).[1][25][26][27][28][36]

Prior profiling of RF solidified organic setups (i.e., ID-RF-S3114) resulted in the assignment of RCRA toxicity characteristic organic HWNs: D022 (chloroform); D026 (cresols); D027 (1,4-dichlorobenzene); D028 (1,2-dichloroethane); D029 (1 1-dichloroethylene); D030 (2,4-dinitrotoluene); D032 (hexachlorobenzene); D034 (hexachloroethane); D036 (nitrobenzene) and D037 (pentachlorophenol). These HWNs, with the exception of D026 and D036, are assigned to the BN600 waste. Due to cross contamination of F-listed waste associated with the supercompactor feedstock, the D026 and D036 HWNs for cresols and nitrobenzene (respectively) are not assigned but rather addressed within the F-listed waste section below.[1][27][28][29][36]

Prior profiling of the AMWTP supercompacted debris waste stream (i.e., BN510.1) resulted in the assignment of the RCRA toxicity characteristic organic HWNs D022 (chloroform), D027 (1,4-dichlorobenzene), D028 (1,2-dichloroethane), D029 (1,1-dichloroethylene), D030 (2,4-dinitrotoluene),

D034 (hexachloroethane), D037 (pentachlorophenol), and D043 (vinyl chloride). These HWNs are assigned to the BN600 waste.[1][26][29][36]

The AMWTP assigned the following toxicity characteristic HWNs to the BN600 waste: D004 through D011, D022, D027, D028, D029, D030, D032, D034, D037, and D043.[1][29][36]

1.7.2.6 Listed Waste

F-Listed HWNs

The RCRA listed HWNs assigned to this waste stream are: F001, F002, F004, F005, F006, F007, and F009.[1][36]

Prior WIPP-approved WSPFs for AMWTP supercompacted waste (BN510.1) and CCP RF organic setups wastes (ID-RF-S3114) resulted in the AMWTP assignment of the following listed HWNs (and applicable hazardous constituents) to BN600 waste:[26][28][29][36]

F001:

1,1,1-trichloroethane (BN510.1 and ID-RF-S3114 WSPFs), 1,1,2-trichloro-1,2,2-trifluoroethane (BN510.1 WSPF), 1,1,2,2-tetrachloro-1,2-difluoroethane (BN510.1 WSPF), carbon tetrachloride (BN510.1 and ID-RF-S3114 WSPFs), methylene chloride (BN510.1 WSPF), tetrachloroethylene (BN510.1 WSPF), trichloroethylene (BN510.1 WSPF) and trichlorofluoromethane (BN510.1 and ID-RF-ID-RF-S3114 WSPFs). The RCRA F001 HWN is assigned to the BN600 waste.[26][28][29][36]

F002:

1,1,1-trichloroethane (BN510.1 and ID-RF-S3114 WSPFs), 1,1,2-trichloro-1,2,2-trifluoroethane (BN510.1 and ID-RF-S3114 WSPFs); 1,2-dichlorobenzene (BN510.1 and ID-RF-S3114 WSPFs), chlorobenzene (BN510.1 WSPF), methylene chloride (BN510.1 and ID-RF-S3114 WSPFs); tetrachloroethylene (BN510.1 and ID-RF-S3114 WSPFs), trichloroethylene (BN510.1 and ID-RF-S3114 WSPFs), and trichlorofluoromethane (BN510.1 and ID-RF-S3114 WSPFs). The RCRA F002 HWN is assigned to the BN600 waste.[26][28][29][36]

F004:

Cresols and nitrobenzene (BN510.1 WSPF). The RCRA F004 HWN is assigned to the BN600 waste.[26][28][29][36]

F005:

2-ethoxyethanol (BN510.1 and ID-RF-S3114 WSPFs), 2-nitropropane (BN510.1 WSPF), benzene (BN510.1 and ID-RF-S3114 WSPFs), carbon disulfide (BN510.1 and ID-RF-S3114 WSPFs), isobutanol (BN510.1 WSPF), methyl ethyl ketone (BN510.1 and ID-RF-S3114 WSPFs), pyridine (BN510.1 and ID-RF-S3114 WSPFs) and toluene (BN510.1 and ID-RF-S3114 WSPFs). The UCL_{90} HSG results for toluene exceeded the PRQL for the constituent.[50] The RCRA F005 HWN is assigned to the BN600 waste.[26][28][29][36]

F006, F007 and F009:

F006, F007, and F009 (BN510.1 WSPF) are assigned due to electroplating waste contamination associated with S/C feedstock. The RCRA F006, F007, and F009 HWNs are assigned to the BN600 waste.[26][29][36]

F003:

The RCRA F003 HWN is not assigned to the BN600 waste. Acetone may be used during the final decontamination of PCB spill areas at the AMWTP. PCB contaminated acetone rags/wipe are included in BN600 wastes. The UCL_{90} headspace gas (HSG) results for acetone exceeded the Program-Required Quantitation Limit (PRQL) for the constituent.[50] The BN600 waste is not a liquid waste and does not exhibit the RCRA characteristic of ignitability (i.e., D001).

Non-halogenated hazardous constituents associated with the BN510.1 and ID-RF-3114 WSPFs include: Acetone (BN510.1 and ID-RF-S3114 WSPFs), cyclohexanone (BN510.1 WSPF), ethyl benzene (BN510.1 and ID-RF-S3114 WSPFs), ethyl ether (BN510.1 and ID-RF-S3114 WSPFs), methanol (BN510.1 and ID-RF-S3114 WSPFs), methyl isobutyl ketone (BN510.1 WSPF), n-butyl alcohol/butanol (BN510.1 and ID-RF-S3114 WSPFs), and xylenes (BN510.1 and ID-RF-S3114 WSPFs). The BN600 waste does not exhibit the characteristic of ignitability as defined in 40 CFR 261.21. Any prohibited PCB liquids associated with waste containers undergo treatment using Aquaset®, Aquaset II-G®, Petroset II® or Petroset II-G®, or Micro-Cel® E absorbents. The RCRA F003 HWN is not assigned to the BN600 waste. [1][26] [29][36]

P-, U-, and K- Listed HWNs

The waste stream is not classified as P, U or K-listed waste. [1][36]

The material in this waste stream is not a discarded unused commercial chemical product, off specification species, container residues (or spill residues thereof) listed in either 40 CFR 261.32, nor have they been known to contact sources of RCRA P or U-listed hazardous wastes. The BN600 waste is not a P or U-listed hazardous waste. [1][25][26][28][36]

Based on a review of AK, it was determined that the BN600 waste is not expected to contain >1% beryllium by weight. Only trace amounts of beryllium are expected. Any detection of beryllium would be associated with process contamination not as a result of an unused commercial chemical product, an off-specification species, a container residue, or a spill residue thereof of beryllium powder. Based on this information, the P015 HWN for beryllium powder, as defined in 40 CFR 261.33 is not assigned to the BN600 waste. [1][25][26][28][36]

Although hydrofluoric acid was identified as a chemical contaminant associated with the supercompactor debris waste feedstock, only spent forms of hydrofluoric acid would have contaminated the feedstock debris waste. Based on this information, the U134 HWN is not assigned to this waste stream.[1][25][26][28][36]

Authorized supercompactor debris feedstock and RF organic setups wastes are not RCRA K-listed wastes. The AMWTP does not generate RCRA K-listed waste. Based on this information, the BN600 waste is not a RCRA K-listed waste. [1][25][26][28][36]

1.8 Toxic Substances Control Act Regulated Contaminants

This waste stream is assumed to be equal to or greater than 50 ppm PCBs and is regulated as a Toxic Substances Control Act (TSCA) waste under 40 CFR 761.[1][36]

BN600 waste is generated as a result of contact with waste classified as PCB sources (i.e., equal to or greater than 50 ppm) in WMF-676. Secondary debris waste included in this waste stream has come in direct contact with PCB sources associated with treating prohibited PCB liquids within RF organic setups sludge in the south box line, removal of prohibited PCB items from authorized supercompacted feedstock in both box lines, criticality cleanout of south box line, maintenance of PCB contaminated equipment in south box line, PCB spill response in both box lines, and PCB item removal and/or treatment in DWPG/SCW.(9)(13)(25)(26)(36)

Asbestos may be included in this waste stream from spill cleanup within box line associated with the S/C feedstock. Asbestos has been identified in some of the debris feedstock waste. Any containers identified as containing regulated types or quantities (e.g., greater than 1% of friable asbestos) will be labeled, as required, in accordance with TSCA and Occupational Safety and Health Administration (OSHA) regulations.(30)

1.9 Other Applicable Waste

There are no other applicable waste streams.

1.10 Radionuclides

The radionuclides of concern for the BN600 waste are: ^{238}Pu, ^{239}Pu, ^{240}Pu, ^{242}Pu, ^{233}U, ^{234}U, ^{238}U, and ^{241}Am. The remaining WIPP-tracked radionuclides, ^{137}Cs and ^{90}Sr, are not expected to be present in measurable quantities in BN600 waste. The two most prevalent radionuclides expected in the BN600 waste are ^{239}Pu and ^{240}Pu. (10)

2.0 SHIPPING CONSIDERATIONS

2.1 Waste Packaging

BN600 wastes are packaged in accordance with INST-OI-24, Packaging Radioactive Waste or INST-FOI-38, Drum Import/Export Glovebox Operations. (33)(48)

BN600 wastes (e.g., drum carcasses and liners) from INST-FOI-38, south box line operations are direct loaded into a 125 mil polyethylene rigid liner which is transferred to the export glove box. The liner is then transferred to a DOT 7A Type A 55 gallon drum which has a 8 mil polyethylene bag or a 12 mil polyethylene transfer sleeve. (36)(48)

Other WMF-676 BN-600 wastes are packaged per INST-OI-24 using 55 gallon drums that are DOT 7A Type A-approved. Wastes are single or double bagged using a 6 mil (or thicker) bag and/or placed in an open head drum with a 6 mil (or thicker) polyethylene drum bag liner. A waste container may be direct loaded, loaded with a single bag, or loaded with multiple bags. (33)(36)(47)

Aquaset®, Aquaset II-G®, Petroset II® or Petroset II-G®, or Micro-Cel® E absorbents may be added to waste container to absorb prohibited liquids. (33)(36)(47)

2.2 Flammability Consideration

The payload containers in the waste stream must comply with the Contact-Handled Transuranic Waste Authorized Methods for Payload Control (CH-TRAMPAC) requirements. As specified in the CH-TRAMPAC, a determination of compliance with the flammable gas limits will be performed for volatile organic compounds (VOCs), hydrogen, and methane. HSG sampling and analysis is performed when required by the WIPP-Waste Analysis Plan (WAP) and/or CH-TRAMPAC. At a minimum, the headspace gas (HSG) analytical results are evaluated to determine the total concentration of flammable VOCs present in the waste. Payload containers, including those with HSG results exceeding 500 ppm flammable VOCs, are evaluated for compliance with applicable CH-TRAMPAC requirements prior to shipment. Payloads containing flammable VOCs are managed in accordance with CCP-PO-003, CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC).[11]

3.0 REFERENCES

NOTE: *AMWTP documents such as procedures, AK reports, and operating instructions, are cited without revision numbers or dates. The most recent revisions of these documents are available through the AMWTP Electronic Document Management System (EDMS). Previous revisions are available on EDMS.*

(1) RPT-TRUW-12, AMWTP Waste Stream Designations.

(2) RPT-TRUW-06, AMWTP TRU Waste Management Acceptable Knowledge Elements (AK Baseline Report for AMWTP Generated Waste).

(3) DOE/WIPP 01-3194, CH-TRU Waste Content Codes (CH-TRUCON).

(4) DOE/LLW-217, DOE Waste Treatability Group Guidance, T. D. Kirkpatrick, Prepared for DOE Idaho Operations Office, Rev. 0, January 1995. [P670A].

(5) Memorandum from George E. Dials, DOE CAO, to J. M. Roberson, RFFO, and J. M. Wilcynski, INEEL, Identification of Defense Waste Streams Generated at Rocky Flats Environmental Technology Site (RFETS), May 20, 1997. [C191A]

(6) Correspondence from Frank Marcinowski to EM-13 (Stan Wolf, 301-903-7962), Process for TRU Waste Defense Determination, February 2005. [C329A]

(7) Interim Guidance on Ensuring that Waste Qualifies for Disposal at the Waste Isolation Pilot Plant, February 1997. [P203A]

(8) Memo to File, Estimated WMP for WMF-676 PCB contaminated debris. [C1019A]

(9) Summary of PCB AK Sources, Wastren, Inc., September 2001. [C207A]

(10) RPT-TRUW-07, Determination of Radioisotopic Content in TRU Waste Based on Acceptable Knowledge.

(11) CCP-PO-003, CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC), Central Characterization Project. [P672A]

(12) DOE/TRU-10-3425, Annual Transuranic Waste Inventory Report - 2010, U.S. Department of Energy, Carlsbad Field Office, Rev. 0. [P1109A]

(13) RPT-TRUW-56, Acceptable Knowledge Document for INL Stored Transuranic Waste – Rocky Flats Plant.

(14) RPT-TRUW-05, Waste Matrix Code Reference Manual.

(15) U.S. Congress, Nuclear Waste Policy Act of 1982. [P757A]

(16) Material Safety Data Sheet, Micro-Cel® E, Celite Corporation, January 17, 2007. [P808S]

(17) ID4890008952, AMWTP HWMA/RCRA Permit and interim status documents.

(18) 10 CFR 962, Byproduct Material. [P1086S]

(19) Interim Status Requirements for NRC Licensees Managing Radioactive Mixed Waste, Clarification, EPA Office of Solid Waste and Emergency Response, October 15, 1989. [P1085S]

(20) MP-TRUW-8.13, Collection, Review, and Management of Acceptable Knowledge Documentation.

(21) MP-TRUW-8.2, Quality Assurance Project Plan.

(22) MP-TRUW-8.1, Certification Plan for INL Transuranic Waste.

(23) INST-OI-12, Real-Time Radiography Operations.

(24) INST-FOI-17, Facility Visual Examination Operations.

(25) CCP-AK-INL-005, Rev. 4, CCP Acceptable Knowledge Summary Report for Rocky Flats Immobilized Organic Liquids Stored at the INL, Waste Streams ID-RF-S3114 and ID-RF-S3150-A, October 20, 2009. [P634A]

(26) BN510.1 Supercompacted Debris Waste Stream Profile Package, September 10, 2010. [P1030A]

(27) RF135.01, Rev. 0, Rocky Flats Environmental Technology Site WIPP Waste Stream Profile Form, TRM Solidified Organic Waste, March 23, 2005. [P1100A]

(28) Central Characterization Project Waste Stream Profile Form; Waste Stream Profile Number ID-RF-S3114 WSPF Package, November 15, 2006. [P666A]

(29) 40 CFR Parts 260-280.

(30) RPT-TRUW-83, Acceptable Knowledge Summary for Supercompacted Debris Waste.

(31) INST-FOI-16- Box Line Operations.

(32) Material Safety Data Sheets, Aquaset® (sodium montmorillonite) and Aquaset II-G® (sepiolite), Fluid Tech, January 1, 2005 and November 11, 2008 [P881S]

(33) INST-OI-24, Packaging Radioactive Waste.

(34) MP-EC&P-7.10, Spill Response Procedure.

(35) INST-OI-88, Spill/Leak Response and Cleanup.

(36) AMWTP Hazardous Waste Determination (HWD 041811-03), July 20, 2011. [C1018A]

(37) Material Safety Data Sheets, PIG® Acid Encapsulating/Neutralizing, Absorbents, February 5, 2007; and PIG® Packing Material, Absorbents, February 1, 2007. [P866S]

(38) INST-FOI-23, Special Case Waste Operations.

(39) INST-FOI-21, Drummed Waste Handling Operations.

(40) Material Safety Data Sheets for Petroset II and Petroset II G, Fluid Tech, Inc. June 8, 1998 and March14, 2006. [P657S]

(41) Material Safety Data Sheets for Sunrise® Exeter, Sunrise Environmental Scientific, March 15, 2001. [P1310S]

(42) Material Safety Data Sheets for Simple Green®, Sunshine Makers Inc., May 2009. [P1298S]

(43) Material Safety Data Sheets for Acetone, Fisher Scientific, March 18, 2004. [P1294S]

(44) Material Safety Data Sheets for Hexane, Fisher Scientific, September 11, 1996. [P1309S]

(45) RPT-NFCS-20, Criticality Safety Evaluation for Sludge Drum Processing in South Box Line.

(46) RPT-NFCS-11, Criticality Safety Evaluation for Operation of the Automated TRU Waste Container Conveyor Handling within the Advanced Mixed Waste Treatment Facility.

(47) INST-FOI-39, Processing Sludge Drums in the South Box Line.

(48) INST-FOI-38, Drum Import/Export Glovebox Operations.

(49) Memo to File, Estimated Number of Containers for the BN600 PCB Contaminated Debris Waste Stream – WJE-001-11. [C1016A]

(50) INST-OI-43, HGAS Sampling and Analysis Operations

(51) INST-OI-34, Non-Facility Visual Examination Operations

(52) RPT-TRUW-13, Acceptable Knowledge Document for INL Stored Transuranic Waste – Mound Plant Waste

(53) RPT-TRUW-04, Acceptable Knowledge Document for the Battelle Columbus Laboratories, Building JN-4 Plutonium Laboratory

(54) RPT-TRUW-82, Acceptable Knowledge Document for Hanford Debris Waste Shipped to AMWTP