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

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NMED Hazardous Waste Bureau

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

Subject: Review of Savannah River Site - Central Characterization Project Waste Stream Profile Form Number SR-HBL-235F-HET, F-Area Materials Storage Facility and H-Canyon Commingled Debris Waste

Dear Mr. Kieling:

The Department of Energy, Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number SR-HBL-235F-HET, *F-Area Materials Storage Facility and H-Canyon Commingled Debris Waste* for the Central Characterization Project at the Savannah River Site.

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

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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

Sincerely,

Jose R. Franco, Manager
Carlsbad Field Office

Enclosure

cc: w/enclosure

S. Holmes, NMED	*ED
T. Kliphuis, NMED	ED
RCRA Chronology Record	ED
WIPP Operating Record	ED
CBFO M&RC	

*ED denotes electronic distribution

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CBFO:NTP:JRS:PG:12-0697:UFC 5900.00

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: SR-HBL-235F-HET					
(2) Generator site name: Savannah River Site			(3) Generator site EPA ID: SC1890008989		
(4) Technical contact: Beverly Schrock			(5) Technical contact phone number: 575-234-7444		
(6) Date of audit report approval by New Mexico Environment Department (NMED): May 23, 2012					
(7) Title, version number, and date of documents used for WIPP-WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 20, June 16, 2011; CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 26, July 14, 2011; CCP-PO-004, CCP/SRS Interface Document, Revision 32, October 25, 2012					
(8) Did your facility generate this waste?	YES	X	NO		
(9) If no, provide the name and EPA ID of the original generator: NA					
Waste Stream Information					
(10) WIPP ID: SR-W027-235F/221H-HET			(11) Summary Category Group: S5000		
(12) Waste Matrix Code Group: Heterogeneous Debris Waste			(13) Waste Stream Name: F-Area Materials Storage Facility and H-Canyon Commingled Debris Waste		
(14) Description from the ATWIR: This waste stream is comprised of large pieces of metal including framing, duct work, cabinets, and equipment, plastic, wood, cardboard, fluorescent light bulbs, punctured aerosol cans, small amounts of absorbent (SP-400 [acrylic anionic polymer]), and "job control" waste.					
(15) Defense TRU Waste:	YES	X	NO		
(16) Check One:	CH	X	RH		
(17) Number of SWBs: 9 (17a) Number of SLB2: 5	(18) Number of Drums: 3 55-gallon drums			(19) Number of Canisters: NA	
(20) Batch Data Report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers.					
(21) List applicable EPA Hazardous Waste Numbers:[1] D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D022, D029, D043, F002, F005 and U-133					
(22) Applicable TRUCON Content Numbers: SR 125 / SR 225, SQ 154, SR 425					
(23)**Acceptable Knowledge Information**					
(For the following, enter the supporting documentation used [i.e., references and dates])					
Required Program Information					
(23A) Map of site: CCP-AK-SRS-20, Revision 0, May 14, 2012, Figures 1, 2 and 3					
(23B) Facility mission description: CCP-AK-SRS-20, Revision 0, May 14, 2012, Section 4.3					
(23C) Description of operations that generate waste: CCP-AK-SRS-20, Revision 0, May 14, 2012, Section 4.6					
(23D) Waste identification/categorization schemes: CCP-AK-SRS-20, Revision 0, May 14, 2012, Section 4.7.2					
(23E) Types and quantities of waste generated: CCP-AK-SRS-20, Revision 0, May 14, 2012, Section 4.7.1					
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-SRS-20, Revision 0, May 14, 2012, Section 4.7.3					

(24) Waste certification procedures: CCP-TP-030, Revision 31, November 19, 2012			
(25)Required Waste Stream Information			
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-SRS-20, Revision 0, May 14, 2012, Section 5.1			
(25B) Waste stream volume and time period of generation: CCP-AK-SRS-20, Revision 0, May 14, 2012, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-SRS-20, Revision 0, May 14, 2012, Section 5.3			
(25D) Waste Process flow diagrams: NA			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-SRS-20, Revision 0, May 14, 2012, Section 5.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See table entitled "Waste Stream SR-HBL-235F-HET Waste Material Parameters" in Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET			
(26) Which Defense Activity generated the waste:			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation			
(27A) Process design documents: NA			
(27B) Standard operating procedures: See D049, D4053, M079, M4164, P146, P147, P148, P149, P4001, P4015, P4018, P4046, P4049, P4051, P4052, P4054, P4056, P4059, P4062, P4063, P4073, P4083, P4092, P4093, P4107, P4108, P4109, P4110, P4111, P4112, P4113, P4123, P4125, P4130, P4131, P4132, P6008, P6009, P6010, P6011, P6027, P6031, P6047, P6058, P6065, P6131 and P6136 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.			
(27C) Safety Analysis Reports: See D048, D084, D4003, D4058, D4116, D6002, D6005, D6007 and D6011 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.			
(27D) Waste packaging logs: See C4022, M079, M4014, M4015, M4085, M4143, M4163, M4164 and M4165 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.			
(27E) Test plans/research project reports: See D4053, D6010, D6034, D6036, D6037, D6038, D6039, D6040, D6041, D6042, D6047, D6048, D6054 and D6057 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.			
(27F) Site databases: See M4082 and M6016 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.			
(27G) Information from site personnel: See C4098, C4104, C4110, C6075, C6076, C6077, D4044, DR4020 and M4082 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.			
(27H) Standard industry documents: See DR4021 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.			
(27I) Previous analytical data: See C4080, C4096, C4110, C6075, C6076, C6077, D4044, DR4020 and M4082 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.			
(27J) Material safety data sheets: See C4020, C4048, C4161, M4051, M4134 and M6008 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.			

(27K) Sampling and analysis data from comparable/surrogate Waste: See C6025 and D4048 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.	
(27L) Laboratory notebooks: See M4073, M4094, M4095 and M4096 in the Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET, Source Documents.	
Confirmation Information	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
(28)	Radiography: CCP-TP-053, Revision 12, August 22, 2012
	Visual Examination: NA
(29) Comments: For a list of the waste characterization procedures used and date of respective procedures see the list of procedures on the attached CIS.	

Reviewed by AK Expert: YES [X] **Date:** 11/28/2012

Reviewed by STR (if necessary): YES [X] N/A [ ] **Date:** 11/19/2012

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.

BSSchrock	Beverly Schrock	12/10/12
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.

CHARACTERIZATION INFORMATION SUMMARY

WSPF # SR-HBL-235F-HET

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream #	SR-HBL-235F-HET	Lot #:	1
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Richard Kantrowitz	Date:	12/5/2012

SPM signature certifies that through Acceptable Knowledge testing and/or analysis that the waste identified in this summary is not corrosive, ignitable, reactive, or incompatible with the TSDF.

A summary of the Acceptable Knowledge regarding this waste stream containing specific information about the corrosivity, reactivity, and ignitability of the waste stream is included as an attachment to the Waste Stream Profile Form. By reference, that information is included in this lot.

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 12	08/22/12	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 11	07/20/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-191	Rev. 1	10/20/09	CCP Box Neutron Assay System (BNAS) Operating Procedure

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-093	Rev. 17	11/20/12	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 16	09/07/11	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 7	12/29/10	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-175	Rev. 3	08/02/11	CCP Analysis of Gas Samples for VOCs by GC/MS
CCP-TP-175	Rev. 2	12/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 20	09/27/12	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 24	12/28/11	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 19	11/02/12	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 24	11/28/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 31	11/19/12	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 30	05/21/12	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-004	Rev. 32	10/25/12	CCP/SRS Interface Document
CCP-PO-004	Rev. 31	10/01/12	CCP/SRS Interface Document
CCP-PO-004	Rev. 30	10/17/11	CCP/SRS Interface Document

CIS002

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # SR-HBL-235F-HET

Lot # 1

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
SR14706101**	N/A	N/A	N/A	N/A	N/A		SRHSG1214	ECL12022M	N/A
SR14706102**	N/A	N/A	N/A	N/A	N/A		SRHSG1214	ECL12022M	N/A
SR14706103**	N/A	N/A	N/A	N/A	N/A		SRHSG1214	ECL12022M	N/A
SR14706105	SRLBC0712	SRLBR0043	N/A	N/A	N/A		SRHSG1222	ECL12040M	N/A
SR14706108	SRLBC0740	SR4RTR0267	N/A	N/A	N/A		SRHSG1222	ECL12040M	N/A
SR14706109	SRLBC0758	SRLBR0051	N/A	N/A	N/A		SRHSG1222	ECL12040M	N/A
SR14706111	SRLBC0746	SRLBR0045	N/A	N/A	N/A		SRHSG1221	ECL12038M	N/A
SR14706112	SRLBC0759	SRLBR0045	N/A	N/A	N/A		SRHSG1221	ECL12038M	N/A
SR14706113	SRLBC0741	SRLBR0045	N/A	N/A	N/A		N/A	N/A	N/A
SR14706114	SRLBC0751	SRLBR0045	N/A	N/A	N/A		SRHSG1221	ECL12038M	N/A
SR14706115	SRLBC0719	SRSRTR0590	N/A	N/A	N/A		N/A	N/A	N/A
SR14706116	SRLBC0721	SRSRTR0591	N/A	N/A	N/A		SRHSG1214	ECL12022M	N/A
SR14706117	SRLBC0719	SRSRTR0590	N/A	N/A	N/A		N/A	N/A	N/A

** These containers were randomly selected for headspace gas analysis and confirmation of EPA HWNs. Due to the inability of RTR to confirm TRUCON codes at this time, these drums are currently ineligible to be transported to WIPP.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2012
Date

CTS003

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: SR-HBL-235F-HET

Waste Stream Headspace Gas Lot Number 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Hazardous Waste Number
Acetone	Log	3	10	-1.31	-2.35	0.63	-2.07	100	4.61		
Benzene	Log	0	10	-3.07	-3.17	0.09	-3.14	10	2.30		
Bromoform	Log	0	10	-4.27	-4.46	0.16	-4.39	10	2.30		
Butanol	Log	0	10	-2.90	-3.03	0.09	-2.99	100	4.61		
Carbon Disulfide(2)	Log	1	10	-1.66	-2.87	0.43	-2.68	10	2.30		
Carbon tetrachloride	Log	0	10	-3.79	-3.90	0.08	-3.86	10	2.30		
Chlorobenzene	No	0	10	0.03	0.03	0.00	0.03	10	N/A		
Chloroform	Log	1	10	-2.80	-3.49	0.27	-3.37	10	2.30		
Chloromethane(2)	Log	0	10	-2.47	-2.78	0.23	-2.67	10	2.30		
Cyclohexane*	Log	0	10	-3.10	-3.23	0.10	-3.19	10	2.30		
1,1-Dichloroethane	Log	0	10	-3.22	-3.33	0.08	-3.29	10	2.30		
1,2-Dichloroethane	Log	0	10	-3.27	-3.34	0.06	-3.31	10	2.30		
1,1-Dichloroethylene	No	0	10	0.04	0.04	0.00	0.04	10	N/A		
cis-1,2-Dichloroethylene*	No	0	10	0.04	0.04	0.00	0.04	10	N/A		
trans-1,2-Dichloroethylene	No	0	10	0.04	0.04	0.00	0.04	10	N/A		
1,2-Dichloropropane(2)	Log	0	10	-3.34	-3.47	0.10	-3.42	10	2.30		
Ethyl benzene	Log	0	10	-3.49	-3.59	0.08	-3.56	10	2.30		
Ethyl ether	Log	0	10	-2.90	-3.03	0.12	-2.98	10	2.30		
Methanol	Log	3	10	2.56	-1.31	1.45	-0.68	100	4.61		
Methyl ethyl ketone	No	0	10	0.05	0.05	0.00	0.05	100	N/A		
Methyl isobutyl ketone	No	0	10	0.03	0.03	0.00	0.03	100	N/A		
Methylene chloride	Log	0	10	-3.00	-3.10	0.09	-3.06	10	2.30		
1,1,2,2-Tetrachloroethane	Log	0	10	-3.79	-3.90	0.09	-3.86	10	2.30		
Tetrachloroethylene	Log	0	10	-3.69	-3.76	0.04	-3.74	10	2.30		
Toluene	Log	5	10	1.16	-2.12	1.86	-1.31	10	2.30		
1,1,1-Trichloroethane	Log	0	10	-3.49	-3.72	0.19	-3.64	10	2.30		
Trichloroethylene	Log	0	10	-3.46	-3.61	0.13	-3.56	10	2.30		
Trichlorofluoromethane(2)	Log	0	10	-3.46	-3.63	0.14	-3.57	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	0	10	-3.75	-3.93	0.14	-3.87	10	2.30		

CIS004

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: SR-HBL-235F-HET

Waste Stream Headspace Gas Lot Number 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Hazardous Waste Number
1,3,5-Trimethylbenzene[a]	Log	0	10	-3.58	-3.69	0.09	-3.65	10	2.30		
1,2,4-Trimethylbenzene[a]	Log	0	10	-3.52	-3.64	0.09	-3.60	10	2.30		
m,p-Xylene[b]	Log	2	10	-2.34	-3.37	0.45	-3.18	10	2.30		
o-Xylene	Log	0	10	-3.46	-3.60	0.12	-3.55	10	2.30		

[a] These compounds are from CCP-PO-003, CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC) and are flammable VOCs that do not appear in CCP-PO-001. These are not part of the target analyte list, but samples may be analyzed for these compounds.

[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section C4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) The noted analytes are not included in the target analyte list Table C3-2 of HWFP Attachment C3. The analytes are reported in the analysis Batch Data Report provided by the Idaho lab and included on the UCL_{90} for completeness.

Signature of Site Project Manager	Richard Kantrowitz Printed Name	12/5/2012 Date

CTS005

CCP Headspace Gas Summary Data

Waste Stream Number SR-HBL-235F-HET Lot Number (s) 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	N/A	N/A	N/A

Data Supports EPA Hazardous Waste Numbers Assigned by AK? ☑ Yes ☐ No

If no, describe the basis for assigning the EPA Hazardous Waste Codes:

SPM Signature [signature] Date 12/5/2012

CIS006

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: SR-HBL-235F-HET Lot(s)#: 1

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	VE was not performed on any of the containers in this Lot.

a. See Batch Data Reports

b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR: RTR was selected as the characterization method for the containers because the waste was previously packaged and RTR meets all the Data Quality Objectives for NDE for waste stream SR-HBL-235F-HET.

Site Project Manager Signature	Richard Kantrowitz Printed Name	12/5/2012 Date

CIS 007

CCP Reconciliation with Data Quality Objectives

WS# SR-HBL-235F-HET Lot # 1

Sampling Completeness

RTR/VE:

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10
Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10
Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: 10 Number of Total Samples Collected: 10
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples: 10 Number of Total Samples Analyzed: 10
Percent Complete: 100 (QAO is ≥90%)

Total VOC

Number of Valid Samples: NA Number of Total Samples Collected: NA
Percent Complete: NA (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples Analyzed: NA
Percent Complete: NA (QAO is ≥90%)

Total SVOC

Number of Valid Samples: NA Number of Total Samples Collected: NA
Percent Complete: NA (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples Analyzed: NA
Percent Complete: NA (QAO is ≥90%)

Total Metals

Number of Valid Samples: NA Number of Total Samples Collected: NA
Percent Complete: NA (QAO is ≥90%)
Number of Valid Samples: NA Number of Total Samples Analyzed: NA
Percent Complete: NA (QAO is ≥90%)

CIS008

CCP Reconciliation with Data Quality Objectives

WS# SR-HBL-235F-HET Lot # 1

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for each VOC in the HSG of each container were calculated and compared with the program required quantitation limits, as reported in CCP-TP-003 Attachment 3, and additional U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers were assigned as required. Samples were randomly collected (when appropriate).
7a	NA	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for solids VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003, Attachment 4, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7b	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for solids SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003, Attachment 5, and additional EPA HWNs were assigned as required. Samples were randomly collected.
7c	NA	Mean concentrations, (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for total metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003 Attachment 6, and additional EPA HWNs were assigned as required. Samples were randomly collected.

CCP Reconciliation with Data Quality Objectives

WS# SR-HBL-235F-HET Lot # 1

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	Y	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y	TICs were appropriately identified and reported in accordance with the requirements of Section C3-1 of the QAPjP.
13	Y	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections C3-2 through C3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	NA	NA	NA
Headspace Gas Analysis	Y	Y	Y
Solids Sampling	NA	NA	NA
Solids VOCs	NA	NA	NA
Solids SVOCs	NA	NA	NA
Solids Metals	NA	NA	NA

Comments: NONE

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2012
Date

Summation of Aspects of AK Summary Report: Waste Stream SR-HBL-235F-HET

Overview

Waste Stream SR-HBL-235F-HET consists of contact-handled (CH) transuranic (TRU) heterogeneous debris waste generated and managed by the Savannah River Site (SRS). Waste Stream SR-HBL-235F-HET is debris from a single Black Box with waste from waste streams SR-W027-235F-HET and SR-W027-HBL-BOX. The original source of waste is from decommissioning of the Alloy Line in the F-Area Materials Storage Facility (FAMS), also referred to as Building 235-F; and the Old HB-Line (OHBL) located in H-Canyon. This waste was commingled in a Black Box and buried in 1984. SRS recently repackaged this waste into WIPP compliant payload containers. All radioactive solid waste produced at SRS is stored or disposed of at the E-Area Radioactive Waste Burial Ground (RWBG) and Solid Waste Management Facility (SWMF).

This waste stream consists of FAMS and H-Canyon/OHBL heterogeneous debris waste generated primarily during or in support of Department of Energy (DOE) defense nuclear materials production. Therefore, this waste stream is defense related waste.

This summation of the Acceptable Knowledge (AK) Summary Report includes information to support Waste Stream Profile Form (WSPF) number SR-HBL-235F-HET for heterogeneous debris waste generated at SRS. The primary source of information for this Summation is CCP-AK-SRS-20, *Central Characterization Project Acceptable Knowledge Summary Report For Savannah River Site H-Canyon and F-Area Materials Storage Facility Commingled Contact-Handled Transuranic Waste,* Waste Stream: SR-HBL-235F-HET, Revision 0, May 14, 2012.

Waste Stream Identification Summary

Wastes Stream Name:	F-Area Materials Storage Facility and H-Canyon Commingled Debris Waste
Waste Stream Number:	SR-HBL-235F-HET
Dates of Waste Generation:	1984
Waste Stream Volume – Current:	3 55-gallon drums, 9 standard waste boxes, and 5 standard large box 2s
Waste Stream Volume – Projected:	None expected
Summary Category Group:	S5000
Waste Matrix Code Group:	Heterogeneous Debris Waste
Waste Matrix Code:	S5400, Heterogeneous Debris Waste
TRUPACT-II Content Codes:	SR 125/SR 225, SQ 154
TRUPACT-III Content Code:	SR 425

Annual Transuranic Waste Inventory Report (ATWIR) Identification Number: SR-W027-235F/221H-HET

Waste Stream Description and Physical Form

Waste stream SR-HBL-235F-HET is comprised of large pieces of metal including framing, duct work, cabinets, and equipment, plastic, wood, cardboard, fluorescent light bulbs, punctured aerosol cans, small amounts of absorbent (SP-400 [acrylic anionic polymer]), and "job control" waste. The original Burial Ground Records (BGRs) described the waste as being exhaust ducts and alloy cabinet, lathe bed, preheat oven and furnace cabinet equipment, and TRU waste from decontamination and decommissioning (D&D) of the OHBL; which is consistent with the repack container documentation. "Job control" waste generally consists of ceramic (e.g., shields, tubes), cloth (e.g., cotton diapers, rags, rope, wipes), glass (e.g., glassware, leaded glass, light bulbs), metal (e.g., equipment, instruments, manipulators, tools), paper (e.g., cardboard, cartons, wipes), plastic (e.g., bags, personal protective equipment, sheeting, tape, tubing), rubber (e.g., neoprene gloves, leaded gloves), and wood (e.g., [high-efficiency particulate air] HEPA filters).

The waste stream meets the definition of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream was generated from comingling of waste generated from deactivation of facilities in Building 235-F and the OHBL in 1984. Since the waste was commingled, and could not be separated into existing waste streams, a "combined" waste stream has been developed based on waste streams SR-W027-HBL-BOX and SR-W027-235F-HET.

Point of Generation

Location

Waste Stream SR-HBL-235F-HET was generated at SRS in Aiken, South Carolina. The waste is currently stored at the SRS E-Area RWBG and SWMF.

Area and/or Buildings of Generation

Waste stream SR-HBL-235F-HET was generated in two separate facilities, Building 235-F and the OHBL located on the upper floors of H-Canyon facility.

Generating Processes

Description of Waste Generation Processes

Waste stream SR-HBL-235F-HET was generated specifically as a result of the decommissioning of the Alloy Line and OHBL (References C149, M079). Any reference to the "HBL" generally refers to the OHBL and the New HB-Line (NHBL) collectively, since the function of both is identical.

<u>FAMS/Alloy Line</u>

The alloy line was constructed in 1964 to produce Plutonium Aluminum Alloy cores which were welded into billets and shipped to 300 Area for extrusion into reactor targets to produce Pu-238. In addition, the cabinets were used as a scrap oxidation facility, to prepare incinerator ash and

other materials for recovery. Major equipment of the Alloy Line cabinets, included a melt furnace, lathe, ductwork, a casting area, a machining lathe, and electrical instrumentation. Because the Alloy Line had not been in operation since 1973, it was decided to decontaminate and remove (D&R) the line in early 1980's since much of the equipment was worn out or obsolete (References D6012, D6035).

Old HB-Line

The OHBL was located on the third and fourth levels of the canyon building and operated from 1963 to 1983, producing radioisotopic heat source Pu-238 (References D4004, D4027, D4116). The OHBL's main function was dissolution of scrap materials for recovery and conversion of feed solutions from H-Canyon into plutonium and neptunium oxides (References D084, D4058). Three independent operations, Neptunium Dioxide, Plutonium Dioxide, and Scrap Recovery, were incorporated into the OHBL and are briefly described below (References D084, M4069):

- The Neptunium Process converted Np-237 solutions received from F- and H-Areas into Np-237 dioxide product.
- The Plutonium Process converted Pu-238 solutions into a plutonium dioxide product.
- The Scrap Recovery Process recovered U-233, U-235, Pu-238, Pu-239, and Np-237 from local and off-site scrap.

Process operations in the OHBL were permanently suspended in 1983, with decommissioning and deactivation operations commencing in 1984 (References D4004, D4027, D4058). Some process equipment from OHBL was not decommissioned and continues to be used as part of the NHBL Phase II processing (References D4003, D4058).

The OHBL facility contained both shielded and unshielded tanks, transfer lines, glovebox enclosed precipitation and furnace stations, material transfer, and waste treatment and packaging stations. The facility processed Np-237, Pu-239, U-233, U-235, and Pu-238 (Reference M4069).

Solutions, powders, and process equipment, such as dissolvers and tanks, were enclosed in ventilated cabinets to prevent the spread of radioactive materials. Cabinets were kept at slightly reduced pressure compared to the process rooms to ensure that any air leakage was into the cabinet and not out into the surrounding room. The cabinets were generally fabricated by covering a steel frame with clear acrylic, clear polycarbonate, glass, or stainless-steel panels. The process cabinets were of two types: dry cabinets and wet cabinets. Solid materials, such as precipitates and powders, were processed in dry cabinets, which were sealed to ensure containment of fine particles. Solutions were processed in wet cabinets. Wet cabinets were not generally sealed because the solution tanks provided the primary containment. Dry cabinets were ventilated with filtered room air, and wet cabinets were ventilated with nonfiltered room air. Glove ports were provided in many cabinet-face panels to permit manual operations and repairs. Bag ports were provided to permit transfer of materials in and out of the cabinets (References D084, D4058).

Radioactive solutions were transferred between cabinets in process pipes enclosed in stainless-steel ducts. On horizontal runs, the tops of the ducts were acrylic or polycarbonate to aid in visually locating leaks. High-level alarms were positioned at convenient low points to which the

liquid might drain. To prevent liquid from flowing to other low points, dams were placed in the ducts (Reference D084).

D&D Operations

BGRs for the Black Box that contained the waste for SR-HBL-235F-HET (before repackaging) described the waste as exhaust ducts and alloy cabinet, lathe bed, preheat oven and furnace cabinet equipment, and TRU waste from D&D of OHBL (References C149, M079).

The Alloy Line began D&D in 1981. A removal plan was developed which discussed the extensive effort which included the removal of the Alloy Line equipment which had not been operated since 1973. The lathe was worn beyond repair, and the idle cabinets were thought to be a hazard due to unseen deterioration of cabinet gloves, in-line filters, and service piping. Exhaust ducts were to be disassembled and packaged in a wooden box (which subsequently went into the Black Box); the machining cabinet required disassembly; lathe cabinet was to be removed and broken down (lathe parts, removal of cutting tools, maintenance tools); and gloveboxes were to be cleaned with manganesed phospholene #7 decontaminant (phosphoric acid solution). A list of the equipment included in the removal plan included a casting furnace cabinet, a pre-heat oven, and a machining (lathe) cabinet as described in the original BGR (References D6035, M079, M4051, M6008).

D&D of OHBL began in about 1984 and followed a four phase process. The first step was the removal of all non-contaminated equipment, which also included flushing tanks, piping, and sumps. In step two, process cabinets were emptied and cleaned. Cabinet interiors were decontaminated to a practical limit. Then the cabinets were painted to affix contaminants. The third step was the cabinet removal stage, where adjoining cabinets were separated and cut into sections to allow for packaging. The last step was the decontamination of the vacated areas of the facility to as low a level of radioactivity as economically practicable. Tasks performed in this effort included painting walls, laying new floor tiles, and reinstallation of services such as lights, ventilation, and alarms. The Kelly decontamination system used steam to decontaminate large concrete areas. Contaminated wash water was pumped to the adjacent H-Canyon for evaporation and transfer to the waste tanks. A Bead Blaster was used to remove deeply penetrated contamination from large areas of concrete floor. "Tacky" wipes were used to decontaminate smooth surfaces (Reference D4004).

The Black Boxes were used to ship equipment (e.g., process cabinets, tanks, furnaces, exhaust fans, ventilation duct, pumps, motors) and any other TRU oversize waste. Waste was to be separated into low-level (LLW) or TRU waste for disposal purposes (Reference C4120). The material was put into plywood boxes when it was removed from OHBL during the disassembly and removal program (Reference C4013). The boxes were sealed with caulking, nails, and tape and labeled with the contents in the facility. When two or more boxes had been prepared, they were transported to the south end of the H-Canyon and placed inside a Black Box for shipment to the Burial Ground (Reference M4085).

Glovebox D&R procedures were generated in 1984-1985. Cabinet 306 was removed first. The only containers in which TRU waste from this effort could be removed were filtered boxes and/or drums. A total of 23 gloveboxes were removed. Each waste box was labeled with room number and box number; dissolvers and other equipment and hardware were also removed in boxes. For boxed waste, HBL wrapped waste in plastic until the removable contamination was sufficiently low; the package was then placed in a plywood box and moved down to the dock (Reference C4152).

Waste Stream Material and Chemical Inputs

The following table identifies the Resource Conservation and Recovery Act (RCRA) toxicity characteristic and listed constituents identified in this waste stream.

Toxicity Characteristic and Listed Constituents in Waste Stream SR-HBL-235F-HET

Chemicals/Materials	Use/Source	EPA Hazardous Waste Number	Reference
1,1,1-trichloroethane	Ingredient in Magnaflux SKC-NF/ZC-7B Cleaner/Remover used in the HBL	F002	C4017, C4105, C4152, M4051
	Ingredient in cleaning products (e.g., Magnaflux Cleaner/Remover, Wasp and Hornet Killer used to clean inside FAMS gloveboxes)	F002	C6024, C6026, C6027 C6065, M6001, M6005, M6008, M6016
1,1,2-trichloro-1,2,2-trifluoroethane	Used in the HBL as a cleaner	F002	C4002, C4017, C4032, C4067 C4105, C4202
	An ingredient in cleaning products used at FAMS (e.g., Freon Precision Cleaning Agent, Lectron-13)	F002	C6024, C6026, C6035, M6004, M6005, M6008
1,1-Dichloroethylene	Historically, the HBL listed this as a contaminant in TRU debris waste	D029	C4155
Arsenic	Present in samples of FAMS tank sludge	D004	C6025, C6027, M6008
Barium	Ingredient in some paints used in FAMS	D005	C6026, M6008
Benzene	Used in FAMS as candidate seal pot fluid; used as an ingredient in the formulation of commercial chemical products (e.g., paints and adhesives) and not used for its solvent properties	D018	C6010, C6024, M6008
Cadmium	Present in samples of FAMS tank sludge; Used in the HBL	D006	C4002, C4098, C4139, C6025, C6027, C6035, D4059, D4067, M4011, M4163, P4015, P4034, P4073, P4123
Carbon tetrachloride	Historically, the HBL listed this as a contaminant in TRU debris waste	D019	C4155
Chloroform	Historically, the HBL listed this as a contaminant in TRU debris waste	D022	C4155, C6010
Chromium	Ingredient in commercial products (e.g., paints, Airco Hi-Test 16). Present in samples of FAMS tank sludge; HBL debris waste historically managed as hazardous for Chromium	D007	C4002, C4098, C6025, C6027, C6035, D4059, D4067, M4011, M4163, M6008, P4015, P4073, P4123
Hydrazine	Used in the HBL during anion exchange in scrap recovery and during neptunium oxalate precipitation	U133	C4116, C4152, D4007, D4055

Lead	Ingredient in commercial products (e.g., paints, C-100 Antiseize Compound); Lead containing items (e.g., glass windows, gloves, shielding plates, shot, spacers, tape, and weights); present in tank sludge and paint samples	D008	C4002, C4014, C4027, C4032, C4080, C4098, C4116, D4005, D4059, D4067, C6024, C6025, C6027, C6035, C6038, C6065, C6069, C6073, C6075, C6076, C6077, M4011, M4163, M6004, M6006, M6007, M6016, P4123, P6058, P6065
Mercury	Alkaline batteries; present in samples of tank sludge; thermometers; fluorescent bulbs	D009	C4002, C4067, C4098, C6025, C6027, C6035, D4067, M079, M4011, M4143, M4163, M6004, P4123
Methyl ethyl ketone	Ingredient in EZ Weld Gray Polyvinyl chloride (PVC) Cement used in the HBL	F005	C4017, C4057, C4105, C4152, C4202, M4051, P4048
Methylene chloride	Ingredient in Wasp and Hornet Cleaner used to clean FAMS gloveboxes	F002	C6024, C6026, C6065, M6001, M6005, M6008, M6016
Selenium	Present in samples of tank sludge	D010	C6025, C6027
Silver	Present in samples of tank sludge	D011	C4002, C4067, M4011, M4143, M4163, P4015, P4123, C6024, C6027, C6035, C6065, M6008, M6016
Tetrachloroethylene	Historically assigned as hazardous constituent to TRU waste in the HBL	F002	C4018,C4098, C4155, D4059, DR4021, M4011, M4163, P4052
Trichloroethylene	Ingredient in Triclene used as a cleaner in the HBL	F002	C4017, C4057, C4098, M4051, P4048
Trichlorofluoromethane (Freon 11)	Ingredient in cleaning products used in FAMS (e.g. Genetron-11)	F002	C6035, M6004, M6005, M6008, M6016
Vinyl chloride	Historically, the HBL listed this as a contaminant in TRU debris waste	D043	C4155

RCRA Determinations

Historical Waste Management

The HBL and FAMS waste has historically been managed in accordance with the generator site requirements and in compliance with the requirements of the South Carolina Department of Health and Environmental Control. Based on historical waste management, the containers in this waste stream were managed as hazardous. A review of available AK documentation has determined that this waste is hazardous. This waste stream was generated in 1984 and it includes waste from D&R from the OHBL and Alloy Line. It may be contaminated with any of the chemicals or metals described in the Toxicity Characteristic and Listed Constituents in Waste Stream SR-HBL-235F-HET table.

The assignment of these Environmental Protection Agency (EPA) hazardous waste numbers (HWNs) was based on a review of chemical inputs to the waste generating operations. Material safety data sheets (MSDSs) and other manufacturer information were obtained for the

commercial products to determine the presence of RCRA regulated constituents. Also, because AK was limited for the OHBL and operations were very similar between the OHBL and NHBL, source documents identifying chemical inputs in the NHBL as identified in CCP-AK-SRS-4, were also used and referenced (References D4004, D4005A, D4059, DR4021, M4011, M4134, M4163, P4049, P4125). Also it should be noted, that where FAMS is referenced in the following characterization discussions, AK did not indicate a specific process in FAMS, so it was assumed it applied to the Alloy Line, as well as other FAMS processes.

Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

Ignitability

The debris materials in this waste stream do not meet the definition of ignitability as defined in 40 Code of Federal Regulation (CFR) 261.21. This material will not cause fire through friction, absorption of moisture, or spontaneous chemical changes. The materials are not compressed gases, nor does the waste contain compressed gases. There were no ignitable metals used as pure metal or otherwise in the HBL or associated operations (e.g., sodium) (References C4098, C4116, C4136, C4152, D4018, D4059, P4052). Oxidizers are known to have been used during the time period of waste generation in operating areas where TRU waste has been generated or handled. However, these reagents are used in small quantities as needed, and should only be present as trace contaminants (References C4001, C4098, C4116, D4005, D4005A, D4007, D4058, D4060, M4058, M4063, P4001, P4125). The materials in this waste stream are, therefore, not ignitable EPA HWN D001 wastes.

Corrosivity

The debris materials in this waste stream do not meet the definition of corrosivity as defined in 40 CFR 261.22. The following example corrosive chemicals were listed in a TRU characterization report: ascorbic acid, nitric acid, oxalic acid, and sodium hydroxide (References D4005, D4005A, P4125). Also, as previously stated, TRU waste containers were not to contain liquids or the liquids were required to be absorbed (References C4032, C4067, C4098, D4005, P4050, P4063). As early as 1974, operating procedures and Solid Waste procedures have required all acids to be neutralized (References C4067, D4088, D4122, P4093). Corrosive liquids used in FAMS were neutralized, and then absorbed on Oil-Dri or Celite (Reference D6007). The materials in this waste stream are, therefore, not corrosive D002 wastes.

Reactivity

The debris materials in this waste stream do not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The materials do not contain reactive cyanide or sulfide compounds. There were no reactive metals used as pure metal or otherwise in the HBL or associated operations (e.g., sodium) (References C4098, C4116, C4136, C4152, D4018, D4059, P4052). Small explosive charge squibs from the fire system were replaced every five years. However, the squibs were discharged prior to disposal and they were not expected to be TRU because they were generated outside of the gloveboxes (References C4098, C4140, C4152). Under the TRU waste certification program, pyrophorics