Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
February 24, 2011

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

Subject: Review of Central Characterization Project – Savannah River Site Profile Form Number, SR-W027-HBL-BOX, Heterogeneous Debris from the H-Canyon HB-Line (HBL)

Dear Mr. Bearzi:

The Department of Energy Carlsbad Field Office has approved the Waste Stream Profile Form, SR-W027-HBL BOX, Heterogeneous Debris from the HBL. Enclosed is a copy of the form as required by Section C-5a of the WIPP Hazardous Waste Facility Permit No. NM4890139088-TSDF.

If you have questions on this matter, please contact me at (575) 234-7300.

Sincerely,

Edward Ziemianski
Acting Manager

Enclosure

cc: w/enclosure
S. Zappe, NMED * ED

cc: w/o enclosure
J. Kieling, NMED ED
G. Basabilvazo, CBFO ED
N. Castaneda, CBFO ED
C. Fesmire, CBFO ED
C. Gadbury, CBFO ED
S. McCauslin, CBFO ED
J. R. Stroble, CBFO ED
K. Watson, CBFO ED
D. Toft, CTAC ED
C. Walker, TechLaw ED
CBFO M&RC
*ED denotes electronic distribution

CBFO:NTP:CF:GS:11-0179:UFC 5900.00

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: SR-W027-HBL-BOX								
(2) Generator site name: Savannah River Site						(4)Technical contact: Craig Simmons		
(3) Generator site EPA ID: SC1890008989						(6) Technical contact phone number: 575-234-7216		
(5) Date of audit report approval by New Mexico Environment Department (NMED): February 1, 2002, April 9, 2003, August 27, 2004, April 29, 2005, June 13, 2006, January 11, 2007, February 25, 2008, March 13, 2009; August 6, 2009, March 16,2010								
(7) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 19, December 29, 2010 CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 25, December 29, 2010 CCP-PO-004, CCP/SRS Interface Document, Revision 28, December 29, 2010								
(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[1]								
(10) WIPP ID: SR-W027-HBL-BOX-A						(11) Summary Category Group: S5000		
(12) Waste Matrix Code Group: Heterogeneous Debris Waste						(13) Waste Stream Name: Heterogeneous Debris from the HBL		
(14) Description from the TWBIR: This waste stream has been separated from its parent waste stream SR-W027-HBL-Box because a small fraction of the parent waste stream contains sensitive waste. Waste Stream SR-W027-HBL-Box-A contains no sensitive waste. This waste stream is defense related debris consisting of large equipment and job control waste packaged in large steel boxes								
(15) Defense TRU Waste:	YES	X	NO					
(16) Check One:	CH	X	RH					
(17) Number of SWBs 842[2]			(18) Number of Drums NA			(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:[3] : D006, D007, D008, D009, D011, D019, D022, D029, D043, F002, F005, U133								
(22) Applicable TRUCON Content Numbers: SR 125,SR 225,SQ 154								
(23)**Acceptable Knowledge Information**[1]								
(For the following, enter the supporting documentation used [i.e., references and dates])								
Required Program Information								
(23A) Map of site: CCP-AK-SRS-4, Revision 11, November 25, 2009, Figures A2-2 and A2-3								
(23B) Facility mission description: CCP-AK-SRS-4, Revision 11, November 25, 2009, Section 4.1.4								
(23C) Description of operations that generate waste: CCP-AK-SRS-4, Revision 11, November 25, 2009, Sections 4.3 and 7.3								
(23D) Waste identification/categorization schemes: CCP-AK-SRS-4, Revision 11, November 25, 2009, Section 4.4								
(23E) Types and quantities of waste generated: CCP-AK-SRS-4, Revision 11, November 25, 2009, Sections 4.2.1, 7.2 and 7.4								
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-SRS-4, Revision 11, November 25, 2009, Section 4.2.2								
(24) Waste certification procedures: CCP-TP-030, Revision 28, May 12, 2010								
(25)Required Waste Stream Information								
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-SRS-4, Revision 11, November 25, 2009, Section 7.1								

(25B) Waste stream volume and time period of generation: CCP-AK-SRS-4, Revision 11, November 25, 2009, Section 7.2			
(25C) Waste generating process description for each building: CCP-AK-SRS-4, Revision 11, November 25, 2009, Section 4.3			
(25D) Waste Process flow diagrams: CCP-AK-SRS-4, Revision 11, November 25, 2009, Figures A2-4, A2-5, A2-6 A2-7, A2-8, and A2-9			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-SRS-4, Revision 11, November 25, 2009, Section 7.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table 2 of the Summation of Aspects of AK Summary Report: SR-W027-HBL-BOX			
(26) Which Defense Activity generated the waste: (check one)			
	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: S1 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27B) Standard operating procedures: S2 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27C) Safety Analysis Reports: S3 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27D) Waste packaging logs: S4 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27E) Test plans/research project reports: S5 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27F) Site databases: S6 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27G) Information from site personnel: S7 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27H) Standard industry documents: S8 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27I) Previous analytical data: S9 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27J) Material safety data sheets: S10 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27K) Sampling and analysis data from comparable/surrogate Waste: S12 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27L) Laboratory notebooks: S11 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP-TP-053, Revision 9, September 30,2010		
(29)	Visual Examination: NA		

(30) Comments: For a list of the waste characterization procedures used and dates of the respective procedures see the list of procedures on the attached CIS

Reviewed by AK Expert: YES [X] **Date:** 2-10-11

Reviewed by STR (if necessary): YES [X] N/A [ ] **Date:** 2-10-11

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.

(31)	(32) Craig Simmons	(33) 2-10-11
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) Use back of sheet or continuation sheets, if required.
(2) This waste stream currently consists of 12 SWBs, 168 standard large box 2s (SLB2s), 9 black boxes, and 22 other containers totaling an estimated 1,583 cubic meters of waste.
(3) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.

CHARACTERIZATION INFORMATION SUMMARY

Waste Stream #: SR-W027-HBL-BOX

Lot #: 1

TABLE OF CONTENTS

CCP Characterization Information Summary Cover Page

Waste Stream #	SR-W027-HBL-BOX	Lot #:	1
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Craig Simmons	Date:	1/30/2011

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. 7	10/21/09	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 14	12/29/10	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 6	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-106	Rev. 7	12/29/10	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-175	Rev. 1	03/29/10	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
CCP-TP-173	Rev. 1	09/30/09	CCP Analysis of Gas Samples for VOCs by GC/FID

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/10	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. 22	06/30/10	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. 17	11/09/09	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. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 28	05/12/10	CCP TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-004	Rev. 27	05/22/09	CCP/SRS Interface Document
CCP-PO-004	Rev. 28	12/29/10	CCP/SRS Interface Document

CIS
02

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream # SR-W027-HBL-BOX 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	
HBL060042	SRLBC0201	SR4RTR0097	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G
HBL070012	SRLBC0202	SR4RTR0109	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G
HBL070038	SRLBC0199	SR4RTR0097	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G
HBL070086	SRLBC0234	SR4RTR0102	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G
HBL070087	SRLBC0199	SR4RTR0097	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G
HBL070117	SRLBC0199	SR4RTR0097	N/A	N/A	N/A		N/A	N/A	N/A
SR57052909	SRLBC0208	SR4RTR0105	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G
SR57052910	SRLBC0208	SR4RTR0105	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G
SR57052911	SRLBC0208	SR4RTR0105	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G
SR57169309	SRLBC0240	SR4RTR0114	N/A	N/A	N/A		N/A	N/A	N/A
SR57169313	SRLBC0240	SR4RTR0115	N/A	N/A	N/A		N/A	N/A	N/A
SR57169314	SRLBC0241	SR4RTR0114	N/A	N/A	N/A		N/A	N/A	N/A
** These containers were randomly selected for headspace gas sampling and analysis and are included for verification of hazardous waste number assignment for the waste stream.									
**SR57052903	N/A	SR4RTR0106	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G
**SR57052906	N/A	SR4RTR0106	N/A	N/A	N/A		SRHSGS100002	ECL10027M	ECL10027G

Signature of Site Project Manager

Craig Simmons
Printed Name

1/30/2011
Date

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: SR-W027-HBL-BOX **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 Code
Benzene	Log	1	10	-1.71	-3.31	0.65	-3.03	10	2.30		
Bromoform	Log	0	10	-2.47	-4.13	0.58	-3.87	10	2.30		
Carbon tetrachloride	Log	0	10	-2.41	-4.08	0.59	-3.82	10	2.30		
Chlorobenzene	Log	0	10	-2.04	-3.72	0.59	-3.46	10	2.30		
Chloroform	Log	0	10	-2.04	-3.73	0.59	-3.47	10	2.30		
Cyclohexane[a]	Log	0	10	-1.45	-3.15	0.60	-2.89	10	2.30		
1,1-Dichloroethane	Log	0	10	-1.49	-3.19	0.60	-2.93	10	2.30		
1,2-Dichloroethane	Log	0	10	-1.61	-3.29	0.59	-3.03	10	2.30		
1,1-Dichloroethylene	Log	0	10	-1.51	-3.20	0.59	-2.94	10	2.30		
cis-1,2-Dichloroethylene	Log	0	10	-1.90	-3.59	0.60	-3.33	10	2.30		
trans-1,2-Dichloroethylene	Log	0	10	-1.24	-2.93	0.60	-2.67	10	2.30		
Ethyl benzene	SQRT	2	10	0.42	0.22	0.10	0.27	10	3.16		
Ethyl ether	Log	0	10	-1.20	-2.89	0.59	-2.63	10	2.30		
Methylene chloride	Log	1	10	3.53	-2.75	2.21	-1.79	10	2.30		
1,1,2,2-Tetrachloroethane	Log	0	10	-2.41	-4.10	0.60	-3.84	10	2.30		
Tetrachloroethylene	Log	0	10	-2.08	-3.76	0.59	-3.51	10	2.30		
Toluene	Log	7	10	1.72	-1.51	1.94	-0.66	10	2.30		
1,1,1-Trichloroethane	Log	0	10	-2.41	-4.11	0.60	-3.85	10	2.30		
Trichloroethylene	Log	0	10	-1.80	-3.49	0.59	-3.23	10	2.30		
Trichlorofluoromethane[(2)]	Log	0	10	-1.93	-3.63	0.60	-3.37	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	0	10	-2.30	-4.02	0.60	-3.75	10	2.30		
1,2,4-Trimethylbenzene[a]	Log	2	10	-1.69	-3.18	0.68	-2.88	10	2.30		
1,3,5-Trimethylbenzene[a]	Log	0	10	-1.61	-3.31	0.60	-3.05	10	2.30		
m,p-Xylene[b]	Log	4	10	-0.42	-2.74	1.45	-2.11	10	2.30		
o-Xylene	Log	4	10	0.26	-2.66	1.33	-2.08	10	2.30		
Acetone	Log	4	10	2.64	-0.62	1.97	0.24	100	4.61		
Butanol	Log	2	10	-0.65	-2.31	0.86	-1.93	100	4.61		
Methanol	No	1	10	73.00	14.05	20.71	23.11	100	N/A		

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: SR-W027-HBL-BOX **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 Code
Methyl ethyl ketone	No	0	10	0.50	0.12	0.13	0.18	100	N/A		
Methyl isobutyl ketone	Log	3	10	1.34	-2.36	1.66	-1.63	100	4.61		
Chloromethane[2]	Log	0	10	-1.61	-3.30	0.59	-3.04	10	2.30		
Carbon Disulfide[2]	Log	3	10	-0.02	-2.11	1.24	-1.57	10	2.30		
1,2-Dichloropropane[2]	Log	0	10	-1.86	-3.56	0.60	-3.30	10	2.30		
Formaldehyde[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine[d]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[a] These compounds are from the TRAMPAC and are flammable VOCs that do not appear in the QAPjP or the WIPP WAP. 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."

[c] Required only for homogenous solids and soil/gravel waste from Savannah River Site.

[d] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

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

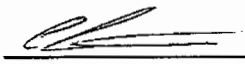
Craig Simmons
Printed Name

1/30/2011
Date

CCP Headspace Gas Summary Data

Waste Stream # SR-W027-HBL-BOX 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  Date 1/30/2011

CTS
OC

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream #: SR-W027-HBL-BOX Lot #: 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 used to certify any 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 and/or VE: Both RTR and VE meet the Data Quality Objectives for waste stream SR-W027-HBL-BOX and would be acceptable methods. For the containers in Lot 1 of SR-W027-HBL-BOX, RTR was the most efficient and practical method available and was therefore selected for use. The adequacy of the method has been demonstrated to meet all of the data quality objectives as documented on the CCP Reconciliation with Data Quality Objectives included herewith.

Site Project Manager Signature	Craig Simmons	1/30/2011
	Printed Name	Date

CIS 07

CCP Reconciliation with Data Quality Objectives

Waste Stream #: SR-W027-HBL-BOX Lot #: 1

Sampling Completeness

RTR/VE

Number of Valid Samples: 12 Number of Total Samples Analyzed: 12
Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 12 Number of Total Samples Analyzed: 12
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%)

CIS 08

CCP Reconciliation with Data Quality Objectives

Waste Stream #: SR-W027-HBL-BOX 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 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 Hazardous Waste Numbers 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 Hazardous Waste Numbers 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 Hazardous Waste Numbers were assigned as required. Samples were randomly collected.

CIS 09

CCP Reconciliation with Data Quality Objectives

Waste Stream #: SR-W027-HBL-BOX 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 | Craig Simmons (Printed Name) | 1/30/2011 (Date)

CIS 10

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: SR-W027-HBL-BOX

Overview:

Waste stream SR-W027-HBL-BOX is a mixed Contact Handled (CH) transuranic (TRU) debris waste generated and managed by the Savannah River Site (SRS). The primary mission of the SRS has been to support national security as a major source of reactor-produced materials, including plutonium, uranium, neptunium, and other special nuclear materials for weapons manufacturing. This waste was generated in the H-Canyon HB-Line (HBL) which receives chemically separated solutions of radioactive materials (e.g., Pu-238 and Np-237 from old SRS reactors) from other H-Canyon facilities and converts them to solid plutonium and neptunium oxides. The HBL also processes plutonium and uranium scrap material received from other on- and off-site facilities. All radioactive solid waste produced at SRS is stored or disposed of at the Radioactive Waste Burial Ground (RWBG) and Solid Waste Management Facility (SWMF).

This waste stream consists of TRU mixed waste generated in support of Department of Energy (DOE) defense nuclear materials production activities. Radioactive material produced in the HBL was transferred from HBL to numerous sites within the DOE complex, where it was used in various defense initiatives and projects. Therefore, waste stream SR-W027-HBL-BOX is defense related waste.

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number SR-W027-HBL-BOX for mixed heterogeneous debris waste from SRS. The primary source of information for this Summation is CCP-AK-SRS-4, *Central Characterization Project Acceptable Knowledge Summary Report For Savannah River Site, Waste Streams: SR-W027-221H-HET, SR-W027-221H-HEPA, SR-W027-HBL-BOX, SR-W027-221H-HET-C, SR-W027-221H-HET-D,* Rev. 11, November 25, 2009. CCP-AK-SRS-4 includes information obtained from numerous sources, including HBL facility and SRS TRU Waste Certification Program documentation effective during the period of waste generation, facility-specific safety analysis reports (SARs), facility operating procedures, Radioactive Solid Waste Burial Ground Records (BGRs), TRU Waste Package Data Forms (TWPDs), Transuranic Waste Container Characterization Forms (TWCCs) also referred to as Operation Safety Requirement (OSR) 29-90 forms, Black Box Repackaging forms, site and facility procedures, and Material Safety Data Sheets (MSDSs).

Waste Stream Identification Summary:

Waste Stream Name:	Heterogeneous Debris from the HBL
Waste Stream Number:	SR-W027-HBL-BOX
Site Where TRU Waste Was Generated:	Savannah River Site

Facility Where TRU Waste Was Generated:	HBL Facility
Site Where TRU Waste is Currently Stored:	Savannah River Site
Waste Stream Volume – Current:	842 standard waste boxes (SWBs)[1]
Waste Stream Volume – Projected:	None[2]
Dates of Waste Generation:	February 1975 to present[2]
TRUCON Content Numbers:	SR 125/SR 225, SQ 154
Summary Category Group:	S5000
Waste Matrix Code:	S5400
Waste Matrix Code Group:	Heterogeneous Debris Waste
Annual Transuranic Waste Inventory Report (ATWIR) Identification Number:	SR-W027-HBL-Box-A
RCRA EPA Hazardous Waste Numbers:	D006, D007, D008, D009, D011, D019, D022, D029, D043, F002, F005, and U133

Waste Stream Description and Physical Form:

Waste stream SR-W027-HBL-BOX consists of heterogeneous debris from equipment replacements and decontamination and removal (D&R) activities. Waste includes large pieces of metal equipment and machinery, plywood boxes, plastic, tape, bags, personal protective equipment (PPE), and organic debris. Examples of waste items include exhaust filter, vessel vent filter, filters, cabinet equipment, cabinet panels, dissolver, sump, furnace, agitator, tanks, base plate, duct, metal, pipe, plastic, scrap, frame, monorail, hut, lights, conduit, high volume air sample boxes, air manifold system, scaffold material, bags of suits, sections of flooring, ceiling tiles, sheets of shielding, carbon steel shielding, metal panels, wire mesh, metal door pieces, valves, cover plates, furnace off-gas filters, High Efficiency Particulate Air (HEPA) filter housing, stainless-steel pan, steel tube block, concrete, plaster, tools, and hoses. The waste may also include small amounts of homogeneous solids such as Celite (diatomaceous earth), soda ash, and Oil-Dri (fullers earth and quartz).

[1] This waste stream currently consists of 12 SWBs, 168 standard large box 2s (SLB2s), 9 Black Boxes, and 22 other containers totaling an estimated 1,583 cubic meters.

[2] No future additional waste stream volume is projected; however, the projected volume may change based on repackaging of existing boxes into WIPP approved payload containers.

Waste stream SR-W027-HBL-BOX is comprised of greater than 50 percent by volume heterogeneous inorganic and organic debris. Therefore, this waste stream is assigned Waste Matrix Code S5400, Heterogeneous Debris. The waste material that comprises waste stream SR-W027-HBL-BOX was generated from a single process or from an activity that is similar in material, physical form, and hazardous constituents and is therefore a single waste stream. The waste material was delineated as a separate waste stream because it consists primarily of metal debris from the process of facility D&R and it may be contaminated with any of the chemicals or metals described for the pre- or post-1990 waste streams SR-W027-221H-HET, SR-W027-221H-HET-C, and SR-W027-221H-HET-D.

Point of Generation

Location

Waste stream SR-W027-HBL-BOX was generated at SRS in Aiken, South Carolina. The waste is currently stored at the SRS RWBG and SWMF.

Area and/or Building of Generation

Waste stream SR-W027-HBL-BOX was generated during glovebox (cabinet) D&R efforts in the HBL facility which occupies several floors of the H-Canyon facility at SRS.

Generating Process

Description of Waste Generating Processes

The wastes were generated in HBL as the result of processes involving production of reactor-produced materials for weapons manufacturing. The HBL mission was broadened over the years to include the production of other radionuclides, such as Pu-238 and Np-237. Routine operational activities (e.g., housekeeping/cleaning, process equipment adjustments, radiological surveys) and preventive and corrective maintenance were the major waste producers. Other contributing activities included facility modifications; decontamination; sump cleanout; absorption of liquids; glove replacement on process cabinets and gloveboxes; mechanical and electrical repairs; maintenance; changeouts of process equipment, piping, cabinet panels, and other equipment; and decontamination and removal of most of the Old HB-Line Gloveboxes. The following are descriptions of the waste generating activities that contributed to or contaminated this waste stream.

Old HB-Line Waste Generating Process

The Old HBL operated from 1963 to 1984, producing Pu-238 material for National Aeronautics and Space Administration programs as well as defense-related materials. It received radionuclides in dilute nitric acid solutions, precipitated them as oxalates,

and then calcined them to a solid oxide form. In addition to Pu-238 and Np-237, the facility processed Pu-239, U-233, and U-235. Waste materials from the Old HBL contained in this waste stream were generated from 1975 through 1984.

Scrap Recovery Process

The Scrap Recovery Process was used to recover U-235, Pu-238, Pu-239, and Np-237 from scrap, by dissolving the scrap in nitric acid then reprocessing. The recovery process consisted of examining the contents of scrap containers, removing extraneous materials, screening, size reduction, oxidation, leaching, and dissolution. Precipitation and ion exchange were also conducted.

Scrap was received as oxide and metal from the Mound laboratory, the Los Alamos National Laboratory (LANL), and onsite. The scrap was inspected and sorted, weighed, pulverized and dissolved using nitric acid, potassium fluoride and aluminum nitrate. The dissolved solution was then filtered and analyzed for Pu-238 prior to reprocessing. Insoluble material (such as tantalum) was either recycled or discarded depending upon its plutonium content. The solution was cooled, filtered, sampled, and analyzed for U-235 and Pu-239 prior to reprocessing.

Neptunium Process

The Neptunium Process purified and concentrated neptunium solutions using anion exchange, precipitation, and calcination. The resulting product was incorporated into new reactor targets and re-irradiated to produce Pu-238. Nitric acid feed solutions were sampled and analyzed for neptunium content and acidity, and then combined with other neptunium feed solutions. Feed solutions were adjusted by adding nitric acid, ferrous sulfamate, and hydrazine mononitrate.

Plutonium Process

The Plutonium Process received Pu-238 nitrate solutions for conversion to plutonium dioxide using precipitation and calcination. High and low assay Pu-238 nitrate solutions were processed as follows. Low assay Pu-238 was recovered from enriched uranium irradiated fuel assemblies. The recovered product was decontaminated, purified and was transferred to other HBL facilities. High assay Pu-238 was recovered from irradiated neptunium target tubes. The plutonium was separated from the dissolver solution and purified by ion exchange. The solution was then blended and transferred to the precipitator feed tank.

Low assay plutonium solution was blended with high plutonium solution to give an isotopic concentration which was suitable for fabrication of heat sources. The acidity of the blend was adjusted using nitric acid, ascorbic acid and hydrazine mononitrate. Plutonium oxalate was precipitated and filtered prior to calcination. When the precipitation was complete, the slurry was filtered to recover plutonium oxalate. The precipitate cake was washed with oxalic acid, hydrazine mononitrate, ascorbic acid,

nitric acid and calcined. The plutonium product was shipped to other facilities where it was fabricated into heat sources.

TRU waste was generated during special activities, such as construction or line breaks. Waste generated as TRU was assayed, drummed, and shipped through the HBL facility.

New HB-Line Waste Generating Processes

TRU waste is generated from the New HBL, surveillance and maintenance activities and non-routine decontamination efforts. Glovebox waste is treated as TRU waste unless determined to be low-level (LLW) waste. Chemicals used in the New HBL are nitric acid, potassium fluoride, aluminum nitrate, sodium nitrite, ferrous sulfamate, ascorbic acid, hydrazine mononitrate and oxalic acid. The HBL is currently processing plutonium and uranium scrap metal referred to as 3013 material. Phase I Scrap Recovery and Phase III facilities are utilized for this process. The 3013 material contains impurities such as vanadium, tantalum, zirconium, beryllium, and molybdenum. Material containing zirconium metal is oxidized then placed in the dissolver. During the 3013 Campaign, the 3013 cans are shipped to the HBL for dissolution in Phase I. Prior to dissolution, the plutonium oxide is washed utilizing an oxide washer, as necessary, in order to reduce the chloride content.

Scrap Recovery Facility (Phase I)

The Scrap Recovery Facility processes material containing isotopes of plutonium, uranium, and neptunium from onsite and offsite locations. Process materials are solid or powdered oxides, pure metals, and mixed or alloyed with other metals. Phase I operations include opening, repackaging, screening, size reducing, and dissolving scrap. Phase I operations recover U-235, Pu-239, Pu-238, and Np-237 from scrap material and produce nitrate solutions for purification by anion exchange in the HBL or solvent extraction conducted in H-Canyon. The process involves introducing scrap into nitric acid, filtering the dissolved product, and then extracting the product with dilute nitric acid. Chemicals used in Phase I include nitric acid, potassium fluoride, aluminum nitrate, and ferric nitrate. Low assay plutonium and FB-Line sweepings, plutonium-beryllium material from FB-Line, and FB-Line scrap materials were also processed in the HBL.

The HBL Phase I Scrap Recovery Facility processed scrap in 2003 that was referred to as desicooler material, a uranium-aluminum scrap with trace amounts of plutonium, neptunium, and americium. Most of this material was from a uranium oxide scrap recovery program that began in 1972 using material from Oakridge National laboratory and Rocky Flats. Several cans of this material were processed under normal scrap recovery operations in 2003, while the remaining material was solidified using Portland cement and water.

The dissolution of composite materials containing plutonium and tantalum metals was performed in Phase I of the HBL Facility in 2007 for subsequent disposition through the H-Canyon facility. The material was rinsed with process water, placed into the dissolver with nitric acid solution containing potassium fluoride, and then burned. The first dissolution process resulted in the precipitation of a fluoride salt containing plutonium which required further dissolution of the salt using aluminum nitrate and heat.

Neptunium Oxide Facility (Phase II)

The original intent of Phase II was to convert nitrate solutions of neptunium into stabilized neptunium oxide. However, no operations occurred in this facility until late 2001, when nitrate solutions of Pu-239 were converted to plutonium oxide suitable for dissolution, blending, or long-term storage. Phase II shifted to neptunium processing in 2004. Neptunium solutions are converted into oxide and shipped to Idaho National Laboratory.

Plutonium or neptunium nitrate solutions are concentrated using ion exchange, filtered, and then precipitated to produce oxalate cake. The cake is calcined and packaged as product. The chemicals used in Phase II include nitric acid, ferrous sulfamate, sodium nitrite, ascorbic acid, hydrazine mononitrate, oxalic acid, potassium permanganate, and ferrous sulfamate.

Plutonium Oxide Facility (Phase III)

Phase III converted Pu-238 nitrate solutions to plutonium oxide suitable for fabrication into heat sources, but has not been in operation since 1997. The original mission for Phase III was to produce Pu-238 oxide for LANL. In 1985, the Pu-238 nitrate solution sent to Phase III came from the H-Canyon HBL, which processed both low assay and blended material made from low and high assay material. Low assay Pu-238 was recovered from irradiated uranium fuel assemblies. High assay Pu-238 was recovered from irradiated target tubes. The targets were removed from the reactor, cooled, and shipped to the separations facility. The cladding was removed from the targets, and the uranium metal and neptunium were dissolved. Ion exchange was used to separate the fission products, uranium, Np-237, and Pu-238. After separation, the Pu-238 was transferred to Phase III, where it was converted into oxide.

The new plutonium oxide process in Phase III was an improved version of the Old HBL plutonium oxide process. Pu-238 nitrate solutions were adjusted using ascorbic acid and hydrazine mononitrate. Oxalic acid was added to form plutonium oxalate. The plutonium oxalate was then calcined to produce Pu-238 oxide. Finally, the Pu-238 oxide was packaged and shipped to another DOE facility. Pu-242 was precipitated in the same manner but did not use ascorbic acid or hydrazine mononitrate. The chemicals used in Phase III included nitric acid, oxalic acid, potassium permanganate, ascorbic acid, and hydrazine mononitrate.

Surveillance and maintenance activities in the HBL continue to generate TRU waste contaminated with Pu-238. The Pu-242 formerly processed in this facility has been removed, and only residual amounts remain.

Repackaging of solid waste and solid materials containing enriched, depleted, or natural uranium, plutonium, and neptunium is presently conducted in the Phase III process line or confinement enclosures (e.g., glove-bags, huts).

Other Facilities

Other facilities within the HBL are the Waste Handling Facility and Room 410N. The Waste Handling Facility contains the Analytical Laboratory. Although this facility was designed to prepare contaminated items for TRU waste disposal, it currently functions as an analytical laboratory in support of the HBL processes. Room 410N houses process equipment used as part of the Phase II process operation.

Old HB-Line Decontamination and Removal (D&R)

The D&R project was conducted using a four phase process. The first phase was the removal of non-contaminated equipment and included flushing tanks, piping, and sumps. In phase two, process cabinets were emptied, cleaned, decontaminated and painted to affix radioactive contaminants. The third phase was cabinet removal, where adjoining cabinets were separated, sectioned and packaged. The last phase was the decontamination of the vacated areas of the facility. 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. A bead blaster was used to remove deeply penetrated contamination from large areas of concrete floor. "Tacky" wipes were used to decontaminate smooth surfaces.

Associated Maintenance and Housekeeping Activities

Maintenance activities conducted in the HBL included lead-lined glove replacements, repair of process related leaks, filter change-outs, changing panels on cabinets and huts, equipment repair (e.g., valve replacement), and inspection and cleaning of exhaust ducts to remove plutonium accumulation. Routine housekeeping activities included sump cleanout, floor sweeping, absorption of process related liquids, construction, breakdown, and disposal of huts adjacent to cabinets, bagging trash out of gloveboxes and cabinets, and decontamination. These activities generated TRU and LLW throughout the time period of waste generation.

Table 1 identifies the RCRA toxicity characteristic and listed constituents identified in this waste stream.

Table 1. Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-HBL-BOX

Chemical	CAS Number	EPA Hazardous Waste Number (HWN)
1,1,1-Trichloroethane	71-55-6	F002
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	F002
1,1-Dichloroethylene	75-35-4	D029
Cadmium	7440-43-9	D006
Carbon tetrachloride	56-23-5	D019
Chloroform	67-66-3	D022
Chromium	7440-47-3	D007
Hydrazine	302-01-2	U133
Lead	7439-92-1	D008
Mercury	7439-97-6	D009
Methyl ethyl Ketone	78-93-3	F005
Silver	7440-22-4	D011
Tetrachloroethylene	127-18-4	F002
Trichloroethylene	79-01-6	F002
Vinyl chloride	75-01-4	D043

RCRA Determinations - Hazardous Waste Determinations

Historical Waste Management

Waste stream SR-W027-HBL-BOX 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 non-hazardous and hazardous. A review of available AK documentation has determined that this waste is hazardous. This waste stream was generated over a 30-year period from February 1975 to present and it includes waste from equipment replacements and D&R activities from HBL facilities; it may be contaminated with any of the chemicals or metals described for the pre- or post-1990 waste streams SR-W027-221H-HET, SR-W027-221H-HET-C, and SR-W027-221H-HET-D. Therefore, the above table identifies the expected hazardous chemical contaminants and associated HWNs applicable to the waste stream.

Ignitability, Corrosivity, Reactivity

Waste generated in this waste stream does not qualify for any of the exclusions outlined in Title 40 Code of Federal Regulations (CFR) 260 or 261. Real-time Radiography (RTR) or Visual Examination (VE) are used to verify that the waste stream is not a liquid waste and does not contain explosives, non-radioactive pyrophoric materials, compressed gases, or reactive waste. Therefore, this waste stream does not exhibit the characteristic of ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

This waste does not exhibit the characteristic of ignitability as defined in 40 CFR 261.21. The waste is not a liquid, an ignitable compressed gas, or an oxidizer, and is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. There were no ignitable metals used as pure metal or otherwise in the HBL process or associated activities (e.g., sodium). Oxidizers (e.g., aluminum nitrate, potassium permanganate) 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. SARs and other documents maintain that liquids are not packaged for disposal, but are instead solidified with absorbent including Celite (diatomaceous earth), soda ash, and Oil-Dri (fullers earth and quartz). To ensure the waste does not exhibit the characteristic of ignitability, liquid in excess of TSDF-WAC limits will be removed or immobilized, and compressed gases (e.g., aerosol cans) will be removed or vented prior to WIPP disposal. Therefore, this waste does not exhibit the characteristic of ignitability (D001) (References C001, C025, C098, C116, C136, C152, D005, D005A, D007, D018, D058, D059, D060, D088, D122, M058, M063, P001, P050, P052, and P125).

Corrosivity

This waste does not exhibit the characteristic of corrosivity as defined in 40 CFR 261.22. The following corrosive chemicals were listed in a TRU characterization report and may contaminate the waste: ascorbic acid, nitric acid, oxalic acid, and sodium hydroxide. TRU waste containers were not to contain liquids or the liquids were required to be absorbed. As early as 1974, operating procedures and solid waste procedures have required all acids to be neutralized. To ensure the waste does not exhibit the characteristic of corrosivity, liquid in excess of TSDF-WAC limits will be removed or immobilized prior to WIPP disposal. Therefore, this waste does not exhibit the characteristic of corrosivity (D002) (References C032, C067, C098, C105, D005, D005A, D088, D122, P050, P063, P093, and P125).

Reactivity

This waste does not exhibit the characteristic 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 in the HBL process or associated activities. 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. Under the TRU waste certification program, pyrophorics were required to be treated to be non-pyrophoric prior to packaging or segregated and labeled non-certifiable. To ensure the waste does not exhibit the characteristic of reactivity, liquid in excess of TSDF-WAC limits will be removed or immobilized, and compressed gases (e.g., aerosol cans) will be removed or vented prior to WIPP disposal. Therefore, this waste stream does not exhibit the characteristic of reactivity (D003) (References C001, C025, C032, C067, C098, C116, C136, C140, C152, D018, D059, P050, and P052).

Toxicity Characteristic

This waste stream exhibits the characteristic of toxicity per 40 CFR 261.24. The toxicity characteristic contaminants fall into two categories; metals and organics. Where a constituent has been identified and there is no or limited quantitative data available to demonstrate that the concentration of a constituent is below the regulatory threshold level, the applicable EPA HWN is applied to the waste stream.

Based on the evaluation of the AK source documentation, this waste stream contains or is contaminated with toxicity characteristic metals. Cadmium (D006) was identified in plates around the New HBL in the vessel vent system and as a contaminant of process liquids. Chromium (D007) was identified in stainless-steel and as a contaminant of process liquids. Lead (D008) was identified as a component of gloves, shielding, and as a contaminant of process liquids. Mercury (D009) was identified as a potential contaminant of HBL debris waste (e.g., thermometers) and as a contaminant of process liquids. Silver (D011) was identified as a contaminant of process liquids. Therefore, EPA HWNs D006, D007, D008, D009, and D011 are assigned to waste stream SR-W027-HBL-BOX (References C002, C014, C027, C032, C080, C098, C116, C139, C185, D005, D059, D067, M011, M163, P015, P034, P073, and P123).

The AK identified the presence of organic toxicity characteristic compounds including carbon tetrachloride (D019), used as a cleaning/degreasing agent; chloroform (D022), a chemical used in HBL facilities; 1,1-dichloroethylene (D029), a chemical used in HBL facilities; and vinyl chloride (D043), identified as a potential contaminate in debris waste. In addition to the above, SRS determined that methyl ethyl ketone (D035), tetrachloroethylene (D039), and trichloroethylene (D040) were also applicable to all pre-1986 HBL waste. However, methyl ethyl ketone, tetrachloroethylene, and trichloroethylene are identified as F-listed solvents. Since the more specific F-listed EPA HWNs have been assigned for these compounds, the corresponding toxicity characteristic HWNs (i.e., D035, D039, D040) are not applied. Therefore, only EPA

HWNs D019, D022, D029, and D043 are assigned to waste stream SR-W027-HBL-BOX (References C155, D018, D059, DR021, M011, M163, and P052).

Listed Waste

F-Listed Waste

Waste stream SR-W027-HBL-BOX was mixed with or derived from F-listed hazardous wastes from non-specific sources as listed in 40 CFR 261.31. F002 and F005 listed solvents were utilized in the HBL and could potentially contaminate the waste. F-listed solvents were used for degreasing, cleaning equipment, and decontamination activities. Therefore, EPA HWNs F002 and F005 are assigned to this waste stream.

Although F001-listed solvents were identified in the AK record (i.e., 1,1,1-trichloroethane, carbon tetrachloride, and trichloroethylene), EPA has provided a regulatory clarification that the F001 listing is only appropriate when the listed solvent is used in a "large-scale" degreasing operation, such as cold cleaning or vapor degreasing on an industrial scale. The HBL facilities did not conduct large-scale degreasing operations and, therefore, EPA HWN F001 is not assigned to this waste stream.

F003 constituents including acetone, cyclohexanone, ethyl acetate, and methanol were used in the processes that generated this waste. These solvents are listed solely because they are ignitable in the liquid form. The waste stream is not liquid and does not exhibit the characteristic of ignitability; therefore, F003 is not assigned.

The following F-listed constituents may contaminate the waste and are applied (References C002, C017, C032, C098, C105, C155, D003, D005, D006, D048, D058, D059, D061, DR021, M011, M051, and M163):

(F002)
1,1,1-Trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, tetrachloroethylene, and trichloroethylene

(F005)
Methyl ethyl ketone

U, K, and P-Listed Chemicals

Waste stream SR-W027-HBL-BOX may contain or is mixed with a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof as defined in 40 CFR 261.33. This debris waste may be contaminated with unused hydrazine a U133-listed waste. Hydrazine was used during anion exchange in Scrap Recovery and during neptunium oxalate precipitation; the maximum allowable concentration was 0.15 molar. Pure liquid hydrazine may have contaminated spill cleanup residues and debris waste following significant spill and contamination events in Scrap Recovery. No additional listed

chemicals were identified in the container-specific documentation (e.g., incident report, waste profile form).

Beryllium contaminates this waste stream in particulate form; however, beryllium powder was not identified in this waste stream. Beryllium is in the waste as a contaminant in plutonium oxide product and in trace quantities from dissolution of plutonium-beryllium alloys. Any beryllium that was dissolved was sent to H-Canyon as solution where the plutonium was recovered and the remaining solution was discarded to waste tanks. Any beryllium remaining in the Scrap Recovery Facility TRU waste would be present only in trace quantities. Based on the AK documentation reviewed, the form of beryllium used does not meet the definition of commercial chemical product beryllium powder (40 CFR 261.33). Therefore, the waste stream does not meet the definition of P015 waste.

Hydrofluoric acid was used in HBL processes including the Scrap Recovery and the Plutonium Oxide processes. Hydrofluoric acid was never brought into HBL as pure chemical or used as a pure chemical in any process, which is consistent with scrap dissolution procedures. Therefore, U134 is not applied.

The material in this waste stream is not a hazardous waste from any of the sources specified in 40 CFR 261.32.

Waste Stream SR-W027-HBL-BOX is not assigned any K- or P-Listed EPA HWNs. The waste is assigned U133 for hydrazine (References C110, C116, C152, C156, C178, C186, D006, D007, D055, M163, P018, P050, P105, and P113).

Headspace Gas/Volatile Organic Compound Information

Headspace gas analysis was completed on 10 randomly selected containers in Lot 1 of this waste stream. No new EPA HWNs were assigned as a consequence of headspace gas sampling and analysis. No UCL_{90} values exceeded the respective target analyte Program Required Quantitation Limits. No tentatively identified compounds were identified. The specifics of this information are included in the attached Characterization Information Summary report.

Other Waste Streams Generated From the Same Buildings and Processes

Currently four other waste streams from the HBL facilities have been identified and characterized. They are assigned different HWNs and the justification is provided below:

Waste stream SR-W027-221H-HET consists of dry heterogeneous organic and inorganic debris. This waste stream is assigned HWNs for cadmium (D006), lead (D008), mercury (D009), carbon tetrachloride (D019), chloroform (D022), 1,1-dichloroethylene (D029), tetrachloroethylene (D039), trichloroethylene (D040), vinyl chloride (D043), F-listed solvents (F001, F002, F003, and F005), and hydrazine (U133).

Waste stream SR-W027-HBL-BOX is expected to be contaminated with the same hazardous constituents and includes the same HWNs except for D039, D040, F001, and F003. The justification for these differences is discussed in the above Toxicity Characteristic and F-Listed Waste sections.

Waste stream SR-W027-221H-HEPA consists of High Efficiency Particulate Air (HEPA) Filters. This waste stream is assigned HWNs for cadmium (D006), chromium (D007), lead (D008), mercury (D009), silver (D011), carbon tetrachloride (D019), chloroform (D022), 1,1-dichloroethylene (D029), methyl ethyl ketone (D035), tetrachloroethylene (D039), trichloroethylene (D040), and vinyl chloride (D043). Waste stream SR-W027-HBL-BOX is expected to be contaminated with the same hazardous constituents and includes the same HWNs except for D035, D039, and D040. The justification for these differences is discussed in the above Toxicity Characteristic section.

Waste stream SR-W027-221H-HET-C consists of dry heterogeneous organic and inorganic debris. This waste stream is assigned HWNs for cadmium (D006), chromium (D007), lead (D008), mercury (D009), and silver (D011). This waste stream was generated from routine operational activities (e.g., maintenance) and the processing of 3013 material and only contains the above contaminants. Waste stream SR-W027-HBL-BOX is expected to be contaminated with the same hazardous constituents and includes these HWNs.

Waste stream SR-W027-221H-HET-D consists of heterogeneous debris as well as cemented material in 1-gallon pails. This waste stream is assigned HWNs for cadmium (D006), chromium (D007), and lead (D008). This waste stream was generated from the processing of scrap referred to as desicooler material and only contains the above contaminants. Waste stream SR-W027-HBL-BOX is expected to be contaminated with the same hazardous constituents and includes these HWNs.

Conclusion

The EPA HWNs that apply to this waste stream are D006, D007, D008, D009, D011, D019, D022, D029, D043, F002, F005, and U133.

Polychlorinated Biphenyls (PCBs)

This waste stream contains PCBs, and therefore is regulated as Toxic Substances Control Act waste under 40 CFR 761. Repackaging activities have identified the presence of PCBs in this waste stream. Containers with PCB waste, identified during RTR and/or VE, will be managed in accordance with the PCB disposal requirements in the Waste Isolation Pilot Plant-Waste Acceptance Criteria (References M164 and M165).

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and characterization activities. RTR or VE is performed on each container to verify the absence of prohibited items. The following items have been determined as not present in the waste:

- Liquid Waste
- Non-radioactive pyrophoric materials
- Hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous waste)
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, or other wastes
- Explosives or compressed gases
- Waste with PCBs not authorized under an EPA PCB waste disposal authorization
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity,
- Waste that has ever been managed as high-level waste and waste from tanks specified in Table C-8 of the WIPP Hazardous Waste Facility Permit, unless specifically approved through a Class 3 permit modification.

Each container of waste is certified and shipped only after RTR and/or VE:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by RTR and/or VE are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

Justification for the Selection of Radiography or VE

Both RTR and VE meet the Data Quality Objectives for waste stream SR-W027-HBL-BOX and would be acceptable methods. For the containers in Lot 1 of SR-W027-HBL-BOX, RTR was the most efficient and practical method available and was therefore selected for use. The adequacy of the method has been demonstrated to meet all of the data quality objectives as documented on the CCP Reconciliation with Data Quality Objectives included herewith.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameters (WMPs) for waste stream SR-W027-HBL-BOX were estimated by reviewing the waste inventory database records.

The database provided a weight percent for packaged waste materials, which were categorized into one or more of the following WMPs: iron based metals/alloys, aluminum based metals/alloys, other metals, other inorganic materials, cellulosics, rubber, and plastics (waste materials). The database also included WMP categories for

steel packaging material and plastic packaging materials. However, the final disposition of many of the containers is uncertain, and it is assumed that the current packaging materials will be included with the waste materials upon repackaging. Therefore, the steel packaging materials category was included with the iron based metals/alloys WMP and the plastic packaging materials category was included with the plastic waste materials WMP. The 12 containers included in the evaluation represent approximately 10 percent of the current waste stream.

The WMPs, average weight percent and weight percent range are presented in Table 2.

Table 2. Waste Stream SR-W027-HBL-BOX Waste Material Parameter Estimates

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	63.15%	0.0 - 82.00%
Aluminum-based Metal/Alloys	4.32%	0.0 - 34.00%
Other Metals	6.92%	0.0 - 29.00%
Other Inorganic Materials	6.92%	0.0 - 19.00%
Cellulosics	10.35%	0.0 - 27.00%
Rubber	0.65%	0.0 - 6.00%
Plastic	7.69%	0.0 - 27.80%
Organic Matrix	0.00%	0.0 - 0.00%
Inorganic Matrix	0.00%	0.0 - 0.00%
Soils/Gravel	0.00%	0.0 - 0.00%

List of AK Sufficiency Determinations

No AK Sufficiency Determinations were requested for this waste stream.

Transportation

This waste stream and its chemical constituents have been reviewed for consistency with listed TRUCON codes and they are consistent.

Beryllium

Beryllium will not be present in amounts greater than 1% by weight of the waste in each container.

Radionuclide Information

The two most prevalent radionuclides in this waste stream, by weight, based on the un-decayed data reported in AK, are Pu-238 and Np-237. The isotopes expected to be present in this waste stream are listed in Table 3.

Table 3. Summary of Waste Stream SR-W027-HBL-BOX Radionuclides

WIPP Tracked Radionuclides	Additional Reported Radionuclides
Am-241	Ba-137m
Pu-238	C-14
Pu-239	Ce-144
Pu-240	Cf-251
Pu-242	Co-60
U-233	Cs-134
U-234	Eu-154
U-238	Eu-155
Cs-137	H-3
Sr-90	I-129
	Kr-85
	Ni-59
	Np-237
	Pm-147
	Pu-241
	Rh-106
	Ru-106
	Se-79
	Sn-126
	Tc-99
	U-235
	U-236
	Y-90

Payload management will not be utilized for this waste stream.

Attachment 1

AK Source Documents, Supplemental Documentation

Source Document Number	AK #	Title	Document Number	Revision	Date
C001	N/A	Memo to TRU Waste Coordinators, J.A. Schlesser: WIPP Certification Plan	N/A	N/A	June 20, 1983
C002	N/A	Memo: Information on TRU Waste Characterization in Support of the WIPP No-Migration Variance Petition	OPS-WMT-890379	N/A	December 27, 1989
C014	N/A	Memo to C.R. Goetzman: Annual Surveillance of HB-Line TRU Waste Certification Program	OPS-WMT-890114	N/A	August 28, 1989
C017	N/A	Memo to R.F. LeBert: Hazardous Products in Our MSDS Books (U)	N/A	N/A	January 25, 1990
C022	S4	Memo to J.P. Dickson: 1500 Cubic Feet Waste Box Repackaging (Revised)	N/A	N/A	June 3, 1986
C025	N/A	Memo to P.T. Deason, et. al.: TRU Boxed Waste	N/A	N/A	May 31, 1989
C027	N/A	Memo to M.A. Ebra: Annual Surveillance of HB-Line TRU Waste Certification Program August 28, 1989	OPS-SHB-890039	N/A	October 24, 1989
C032	N/A	Memo to M. O'Rear re: SR Information on TRU Waste Characterization in Support of the WIPP No-Migration Variance Petition	N/A	N/A	January 4, 1990
C038	S7	Memo to J.P. Duane re: 221-HB-Line History	N/A	N/A	November 17, 1977
C066	S7	Interview of C. McClard Regarding the HB-Line Process Timeline	N/A	N/A	November 14, 2002
C067	N/A	SR Information on TRU Waste Characterization in Support of the WIPP No-Migration Variance Petition	OPS-WMT-900003, OPS-SBT-900001	N/A	January 4, 1990
C080	S9	Memo: Pb-Lined Gloves Telephone Call to O. Fordham, Letter to O. Fordham: Pb-Lined Gloves and Request for Concurrence to use the Exemption from Particle Size Reduction in the TCLP Method 11311 for Lead Lined Gloves (U)	Letter: ESH-FSS-95-0140	N/A	Memo: May 30, 1996, Letter: March 17, 1995
C084	N/A	Memo to M.J. Sires: Polychlorinated Biphenyl's (PCBs) Used in Electrical Equipment	N/A	N/A	5/12/1982
C096	S9	Letter re: Shipment of Pu-242 Oxide to Lawrence Livermore Laboratory and shipments 270, 273, 263, 238, 259, 245, and 258	N/A	N/A	April 27, 1981

Source Document Number	AK #	Title	Document Number	Revision	Date
C098	S7	Record of Communication for Interview of K. Menger, T. Reilly, S. Bowers, and E. Dillon	CCP-TP-005, Rev. 10	N/A	December 10, 2002
C104	S7	Notes from Interview of J. "Chip" McClard	N/A	N/A	July 24, 2002
C105	N/A	Record of Communication for Interview of G. Roberts, B. Bush, and M. Minor	CCP-TP-005, Rev. 10	N/A	November 20, 2002
C110	S9	Letter to R.D. Leedle: Savannah River Plant Project S-2256 - Replace Obsolete Processing Facilities 221-HB-Line DA-221-H Plutonium-238 Oxide Product Quality	N/A	N/A	November 4, 1980
C111	S9	Memo to S.J. Snyder: Origin of Material Charged in HB-Line to Support Cassini	NMP-EHB-940173	N/A	July 29, 1994
C116	S7	Record of Communication with Mike Mobley	N/A	N/A	November 20, 2002
C136	S7	Record of Communication for Interview of C. Ryberg and R. Mahannah	N/A	N/A	December 5, 2002
C139	N/A	RCRA Characterization of SRS-Produced Plutonium Oxide	NMS-EHB-970073	N/A	March 12, 1997
C140	N/A	E-Mail to P. Fulghum: Squib Igniters Used In "Halex" Fire Suppression	N/A	N/A	February 3, 1999
C152	S7	Record of Communication for Interview with G. Blackburn, B. Smith, C. McClard, C. Byrd, and F. Loudermilk	N/A	Rev. 0	August 29, 2002
C155	N/A	Applicability of RCRA Waste Codes to TRU Waste Generated in HB-Line Interoffice Memo, From: C.B. Stevens, To: M.A. Kokovich	SWD-SWE-2003-00002	N/A	January 7, 2003
C156	S7	Record of Communication: Interview of Bob Smith, Rick Burns, and Jim Barber, Subject: TRU Waste and Hazardous Chemical Usage in the New HB-Line	N/A	N/A	January 9, 2003
C157	S7	Record of Communication: Interview of Ray Smith and Betty Bush, Subject: Use of Chemicals (Acetone) by HBL Maintenance	N/A	N/A	January 9, 2003
C158	S7	Record of Communication - Interview with J.W. Barber Re: Use of Acetone in the New HB-Line Facility	N/A	N/A	01/20/2003
C161	S7, S10	Fyrquel Hydraulic Oil	N/A	N/A	8/12/03
C174	S7	Evaluation/Validation of the 221-HBL Radionuclide Distribution	NMS-EHB-960011		January 11, 1996
C178	N/A	Email correspondence with Jeff Lunsford regarding beryllium	N/A	N/A	10/20/04
C185	N/A	Memo to Bettie Bush re: Resource Conservation and Recovery Act (RCRA) Characterization of Waste Generated During 3013 Campaign	M&O-MDO-2006-00400	N/A	11/30/2006

Source Document Number	AK #	Title	Document Number	Revision	Date
C186	N/A	Calculation Cover Sheet: Waste Characterization for FB Line Drums Contaminated with Beryllium	N-CLC-F-00643	Rev. 3	05/2006
C187	S9	Memo to Bettie Bush from Don Whitley, re: HB-Line Waste Distribution for Mixed Scrap (U)	NMM-EHB-2000-00063	Rev. 3, 9	03/17/2004
D003	S3	Building 221-H, B-Line Scrap Recovery Facility (SUP 2A) Safety Analysis Report	DPSTSA-200-10-2	Sup 2A	July 1991
D005	N/A	Characterization of HB-Line Transuranic (TRU) Waste (UCNI)	NMS-EHB-990045	Rev. 0-9	9/24/1999 - 8/2/2005
D005A	N/A	Characterization of HB-Line Transuranic (TRU) Waste	NMS-EHB-990045	Rev. 10	01/08/2007
D006	N/A	Technical Manual -- Plutonium-238 Scrap Recovery, Building 221-H	DPSTM-238Pu-Scrap	N/A	June 1, 1975
D007	N/A	221-H-SP Technical Standards (UCNI)	DPSTS-221-H-SP	N/A	March 11, 1983
D008	S6	TRU Waste Characterization Summary, Volume 1: Main Report, Volume 2: Software Documentation, Volume 3: Data Analysis	WSRC-RP-99-00477	Rev. 0	Issued June 1, 1999
D018	N/A	Waste Analysis Plan (TRU Waste Storage Pads and ETWAF/WCF) [p. 32: This Waste Analysis Plan was developed in accordance with SCHWMR R.61-79.264.13 and is an integral part of the SRS 1992 RCRA Part B Permit Application.]	N/A	N/A	April 17,1996
D042	S1	Development of an Integrated Facility for Processing TRU Wastes at the Savannah River Plant	DP-MS-77-74	N/A	December 5, 1977
D048	N/A	Technical Standards For H-Area B-Line Scrap Recovery	DPSTS-221-HBL-100	N/A	July 1, 1991
D052	S3	Systems Analysis - 200 Area Savannah River Plant HB-Line Operations	DPSTSY-200-11	N/A	May 1978
D053	S2, S5	Physical Behavior of Pu-238 Oxide (U)	SRT-MTS-96-3026	N/A	October 17, 1996
D055	N/A	Technical Standard Enriched Uranium and Plutonium Scrap Recovery in Building 221-HB-Line	DPSTS-221-HB-SCRAP	N/A	June 1976
D057	S3	Safety Analysis - 200 Area Savannah River Plant. Separations Area Operations; Building 221-H, B-Line Vault in Room 556. (Addendum to Sup 2C)	DPSTSA-200-10 Sup 2C Add 1	N/A	9/86
D058	S3	HB-Line Basis for Interim Operation (U)	WSRC-RP-96-553	Rev. 1, 7, 8, 9	December 1997, 2000, March 2001, July 2001

Source Document Number	AK #	Title	Document Number	Revision	Date
D059	N/A	Applicability of RCRA Waste Codes to TRU Waste Generated in HB-Line Before 1986	N/A	N/A	December 4, 2002
D060	N/A	Calc Note - HB-Line Chemical Hazard Analysis (U)	SRT-SAE-93-9213	Rev. 0	October 21, 1993
D061	N/A	Technical Standards for H Area B-Line Plutonium Oxide Facility	DPSTS 221 HBL-300	Rev. 1	7/1/91
D062	S3	Recovering U-235 and Pu-238-Pu-239 in Building 221-H	DPSTS-221H-Pu-U	N/A	12/31/68
D063	S9	Pu-236 Impurities in Pu-238 Oxide	DPST-88-XXX	N/A	December 9, 1988
D067	N/A	Separations HB-Line Facility Transuranic (TRU) Waste Certification Plan	NMS-EHB-990044	Rev. 0, 2, 3, 4, 9	July 1999 to August 2006
D076	S3	Technical Standard for the Management of Radioactive Waste at the SRP Storage/Disposal Facilities 643-7G, 643-29G, 709-2G	DPST-88-48-33	Rev. 1	3/10/89
D088	N/A	Savannah River Certification Plan for Newly Generated, Contact-Handled Transuranic Waste	DPSP 84-17-1	Rev. 4	June 5, 1987
D089	S3	HB-Line and H-Canyon Worker Safety	WSRC-TR-95-0095	Rev. 0	March 7, 1995
D090	S5	Test Authorization No. 2-917 for Cleanup of Room 311 Sumps	DPSOX 8876	N/A	December 28, 1976
D091	S8	"Land Disposal Restrictions for Newly Listed Wastes and Hazardous Debris" Federal Register: 40 CFR Parts 148, 260, 261, 262, 264, 265, 268, 270, and 271	Vol. 57, No. 160	N/A	August 18, 1992
D094	S8	National Spent Fuel Program Report of RCRA Characteristics of DOE-Owned Spent Nuclear Fuel	DOE-SNF-REP-002	Rev. 4	December 1997
D099	S9	Sample Schedule for HB-Line and the Compact Billet Line in 235-F	DPSPU-77-272-93	N/A	4/4/1977
D103	S2	Building 221H - Transplutonium Technical Standards	DPSTS-221H-TP	N/A	11/3/1964
D114	S5, S9	Neutralization of Plutonium and Enriched Uranium Solutions Containing Gadolinium as a Neutron Poison	WSRC-TR-2004-00053	Rev. 0	2/2004
D115	S5, S9	Dissolution of FB-Line Residues Containing Beryllium Metal	WSRC-TR-2005-00042	Rev. 0	2/2005
D116	S3	HB-Line Safety Analysis Report (U)	WSRC-SA-2001-00009	Rev. 5	August 2006
D122	N/A	HB-Line Facility Transuranic (TRU) Waste Certification Plan	N-WCP-H-00001	Rev. 1,0	06/30/09; 06/2008
DR002	S2	Discrepancy Resolution: U Listed Chemical Hydrofluoric Acid	N/A	N/A	03/20/03
DR021	N/A	Waste Stream SR W027 HBL BOX, Historical and Current RCRA Characterization and Assignment of	N/A	N/A	December 2, 2009

Source Document Number	AK #	Title	Document Number	Revision	Date
		EPA Hazardous Waste Numbers			
M005	S4	Burial Box Information Sheets 2-7	N/A	N/A	No Date
M011	N/A	Go West Database Query	N/A	N/A	December 13, 2002
M014	S4	Burial Ground Records and TRU Waste Package Data Forms	N/A	N/A	Varies
M051	S10	MSDSs	N/A	N/A	N/A
M052	S6	COBRA Database Update	N/A	N/A	January 2002
M058	N/A	Notes - HB-Line TRU Waste	N/A	N/A	N/A
M059	S9	Pu-242 Sample Results	N/A	N/A	November 16, 1996
M060	S9	Spreadsheet - STP-055 Not Processed Rad Detail	N/A	N/A	March 18, 1999
M063	N/A	Handwritten table of chemical information	N/A	N/A	Unknown
M076	S9	Customer Sample Report, HB-Line Phase II Analytical Data	N/A	N/A	November 30, 2002
M078	S9	HB-Line Phase III Product	N/A	N/A	1993-1996
M082	S6, S9	Clarification of Scrap Declaration	N/A	N/A	8/5/91
M083	S12	Storage Configurations, Mound Scrap Material that was Used in Cassini	N/A	N/A	Pre December 2002
M084	S9, S11	Authorization to Ship Nuclear Materials	0SR 39-25	N/A	6/13/95
M085	S4	Burial Box Forms	Procedure D-047	N/A	1988-1991
M086	S7	Handwritten Notes - HB-Line D&R Mtg	N/A	N/A	5/27/86
M130	S9	White Paper from Joe Harvill: Correlation of Plutonium Content with Measured Np-237 Activity	N/A	N/A	02/21/2007
M134	S10	Material Data Safety Sheets (MSDS) for Decon Products in NOP 221-HB-4989	N/A	N/A	Various
M163	N/A	Container-Specific Records (e.g., BGRs, 29-90 Forms, Black Box Repackaging Forms) for Containers Added to CCP-SRS-AK-004, Revision 11; Waste Stream SR W027 HBL BOX	N/A	N/A	Various
M164	S2, S4	Black Box Repackaging	N/A	Rev. 2, 3, 7	July 2005 to March 2007
M165	S4	Black Box Repackaging Data Sheets	N/A	N/A	N/A
P001	N/A	Excess Permanganate, Technical Reference, Procedure Manual L3.11	N/A	N/A	6/27/01
P002	S2	CMC Analysis/Operation/Maintenance OJT Guide, Trainee Study Guide	SS061145	Rev. 1	N/A
P005	S1, S3	Accessing High Radiation Areas (U)	NOP 221-HB-4024	Rev. 1	6/11/97

Source Document Number	AK #	Title	Document Number	Revision	Date
P015	S2	Cabinet Bagport Operations (U)	NOP 221-HB-4927	Rev. 7-10, 13, 14, 22, 46	September 1996 to 12/15/2006
P018	S2	TRU Waste Drum Data Sheet	NOP 221-HB-4721	Rev. 4, 6, 7, 8, 11, 14, 26	November 1998 to November 2006
P028	S2	Adding Chemicals to Scrap Recovery Dissolvers, Product Hold Tanks, Filtrate Tank, and the Vessel Vent Catch Tank (U)	NOP 221-HB-4265	Rev. 2, 3	October/ December 1997
P031	S2	Inspecting, Removing, and Installing Scrap Recovery Process Filter Media (U)	NOP 221-HB-4222	Rev.7	May 10, 1996
P034	N/A	TRU Waste Drum Data Sheet for Plutonium (Pu) 242 (U)	NOP 221-HB-4765	Rev. 0	June 20, 1996
P035	S2	Scrap Recovery North Line Pu-239 Material Holdup Determination	NOP 221-HB-4410	Rev. 0	11/6/97
P036	S2	HB-Line Facility Process Filter Cleaning (U)	NOP 221-HB-4551	Rev. 4, 5	July/October 1997
P045	S2	Packaging and Disposing of Dry Radioactive Waste	DPSTP-R-141	N/A	November 1974
P046	S2	Special Products HB-Line; Chapters I, II, III, V, & VII	DPSOP 105, Chapters 1-3, 5, 7	Rev. 6-10	September 1964 to August 1966
P050	N/A	SRS Waste Acceptance Criteria: E-Area, TRU Pads -- Transuranic Waste Acceptance Criteria	WSRC-1S, Sect. 3, WAC 3.06	Rev. 0, Draft, 11, 12	Post 1989, 04/30/2005, 06/30/09
P052	N/A	Drum Retrieval from TRU Pads 2-6 (U)	643-E-58, Q-R-S-NCSC	Rev. 0, 4	August 13, 1997
P063	S2	Handling Radioactive Waste	DPSOL 221-HB-2393	Rev. 0	Estimated Date is July 1974
P064	S2	Completing TRU Waste Burial Records	DPSOL 221-HB-2422	Rev. 1	March 1982
P067	S2	Cabinet Bag Port Operations	DPSOL 221-HB-2315	Rev. 4	January 1983
P071	S2	Neutralization of Polypropylene Filter Bags in Scrap Recovery	DPSOL 221-HB-2641	Rev. 1	September 1982
P073	S2	Completing TRU Waste Burial Records and TRU Waste Data Package	D-103, REF 221-HB-4725	Rev. 5, 6, 7, 8	3/31/91, 3/17/93 to 1/12/99
P076	S2	Ordering, Purchasing, and Handling of Blue Dot Chemical Products (U)	SOP 221-HB-4756	Rev. 0	August 27, 1991
P080	S2	Procedure Manual SS5-11: Evaluating Pu-238 Scrap Material for HB-Line Reprocessing (U)	SOP 221-HB-4199	Rev. 0	September 25, 1992
P081	S2	Potassium Permanganate (KMnO4) Neutralization and Disposal	NOP 221-HB-4650	Rev. 2	September 19, 2000
P082	S2	Neutralization of Polypropylene Filter Bags in Scrap Recovery (U)	REF 221-HB-4241	Rev. 6	February 21, 1998

Source Document Number	AK #	Title	Document Number	Revision	Date
P083	S2	Neutralization of Phase II Non-filter Waste	NOP 221-HB-5007	Rev. 0, 2	April 29, 2002; 9/27/2005
P084	S2	Filter Changeout and Neutralizing Waste/Filters	NOP 221-HB-5001	Rev. 3, 4	February 12, 2002; 2/14/03
P090	S2	Suspect Waste Management Program (U)	SOP 221-HB-4716	Rev. 2	01/27/93
P092	S2	Packaging and Sealing the Standard Waste Box	NOP 221-HB-4761	Rev. 0	11/05/02
P093	S2	Completing TRU Waste Burial Records and TRU Waste Data Package for Pu-239 (U)	REF 221-HB-4799	Rev. 0	10/20/97
P095	S2	Operating the Gamma Pulse Height Analyzer for U-235 Waste	DPSOL 221-HB-2299	Rev. 0	September 1975
P096	S12	Operating Gamma Pulse Height Analyzer for Pu-238 Waste	DPSOL 221-HB-2298	Rev. 0	September 1975
P097	S2	Operating the Gamma Pulse Height Analyzer for Np-237 Waste	DPSOL 221-HB-2297	Rev. 0	September 1975
P103	S2	Handling of Low-Level Radioactive Solid Waste	REF 221-HB-4700	Rev. 15	4/30/2001
P104	S2	Solids Rinsing, HB Line (U)	L3.11-10017	Rev. 1	8/27/1999
P105	S2	Dissolution of Fissile Scrap	DPSOL 221-HB-5270	Rev. 2	07/06/1989
P106	S2	Absorbing Containerized Liquids	22-F-55012	Rev. 2	9/19/2006
P107	S2	TRU Drum Remediation Process	SP-18-002	Rev. 5	9/12/2006
P108	S2	Procedure 836 from the Phase I Scrap Recovery Manual: Phase I Glovebox Cleanup and Neutralization of Acidic Wipes	IOP 221-HB-2150; 836	Rev. 3, 6	11/8/2006; 6/26/2008
P109	S2	Controls for Waste Containers That Requires Further Processing & Procedure Change Request	REF 221-HB-4766	Rev.2	11/08/2006
P111	S2	MRS Operations (U)	SW15.3-SOP-MRSOPS-01	Rev. 3	3/1/2007
P112	S2	SWMF Immediate Procedure Change (IPC) Request Form for TVEF Operations (U)	SW15.3-SOP-TVEFOPS-01	Rev. 2	3/1/2007
P113	S2	Packaging Phase I (Scrap Recovery) TRU Waste	NOP 221-HB-4731	Rev. 16	12/16/2004
P123	S2	Bagport Operations Manual Sections 2.0, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.10, 8.1.2, 8.1.3, and 8.1.4	IOP 221-HB-2092	Rev. 0, 1	06/27/2008 - 07/11/2008
P125	N/A	HB-Line Characterization of Transuranic (TRU) Waste (Supersedes Rev. 10 of NMS-EHB-990045, D005A)	N-WCP-H-00003	Rev. 0	07/2008
P128	S2	Operation and Assaying per the Radionuclide Assay System-Photon and draft revision documentation	NOP 221-HB-4851	Rev. 19	04/29/2008

Alphanumeric Designations

C	Correspondence
D	Documents (e.g. published reports)
DR	Discrepancy Resolution
M	Miscellaneous (e.g. unpublished data)
P	Procedures

AK Numbers

S1	Process Design Documents
S2	Standard Operating Procedure
S3	Safety Analysis Reports
S4	Waste Packaging Logs
S5	Test plans/research project reports
S6	Site databases
S7	Information from site personnel
S8	Standard industry documents
S9	Previous analytical data
S10	Material safety data sheets
S11	Laboratory Notebooks
S12	Comparable or surrogate sampling and analysis data