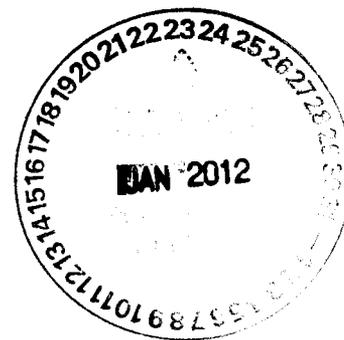




ENTERED

**Department of Energy**  
Carlsbad Field Office  
P. O. Box 3090  
Carlsbad, New Mexico 88221  
JAN 17 2012



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

Subject: Review of Savannah River Site Central Characterization Project Waste  
Stream Profile Form Number SR-W026-221F-HET-A

Dear Mr. Kieling:

The Department of Energy, Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number SR-W026-221F-HET-A, *Heterogeneous Debris from F-Canyon and FB-Line Facilities*, 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,

Edward Ziemianski  
Interim Manager

Enclosure



Mr. John Kieling

-2-

JAN 17 2012

cc: w/enclosure

T. Hall, NMED \*ED

T. Kliphuis, NMED ED

S. Holmes, NMED ED

cc: w/o enclosure

J. R. Stroble, CBFO ED

M. Pinzel, CBFO ED

N. Castaneda, CBFO ED

T. Morgan, CBFO ED

B. Mackie, CBFO ED

CBFO M&RC

\*ED denotes electronic distribution

Attachment 2 – CCP Waste Stream Profile Form

<b>(1) Waste Stream Profile Number:</b> SR-W026-221F-HET-A	
<b>(2) Generator site name:</b> Savannah River Site	<b>(3) Generator site EPA ID:</b> SC1890008989
<b>(4) Technical contact:</b> Beverly Schrock	<b>(5) Technical contact phone number:</b> 575-234-7444
<b>(6) Date of audit report approval by New Mexico Environment Department (NMED):</b> March 3, 2011	
<b>(7) Title, version number, and date of documents used for WIPP-WAP Certification:</b> 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 30, October 17, 2011; CCP-AK-SRS-3, Central Characterization Project Acceptable Knowledge Summary Report for Savannah River Site Waste Streams: SR-W026-221F-HET, SR-W026-221F-HOM, SR-W026-221F-HEPA and SR-W026-221F-HET-A, Revision 9, April 26, 2010	
<b>(8) Did your facility generate this waste?</b> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
<b>(9) If no, provide the name and EPA ID of the original generator:</b> NA	
<b>Waste Stream Information</b>	
<b>(10) WIPP ID:</b> SR-W026-221F-HET-A	<b>(11) Summary Category Group:</b> S5000 – Debris Waste
<b>(12) Waste Matrix Code Group:</b> Heterogeneous Debris Waste	<b>(13) Waste Stream Name:</b> Heterogeneous Debris from F-Canyon and FB-Line Facilities
<b>(14) Description from the ATWIR:</b> The waste consists primarily of Berl saddles, but also includes metal electrical equipment (e.g., scales, detectors, nickel-cadmium batteries), small amounts of plastic (e.g., bags, bottles, tape), and cellulosic absorbent pads.	
<b>(15) Defense TRU Waste:</b> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
<b>(16) Check One:</b> CH <input checked="" type="checkbox"/> RH <input type="checkbox"/>	
<b>(17) Number of SWBs:</b> NA	<b>(18) Number of Drums<sup>2</sup>:</b> 5 55-gallon drums
<b>(17a) Number of SLB2:</b>	<b>(19) Number of Canisters:</b> NA
<b>(20) Batch Data Report numbers supporting this waste stream characterization:</b> See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers	
<b>(21) List applicable EPA Hazardous Waste Numbers:<sup>1</sup></b> D006, D007, D008, D009, D011, D019, D022, D028, D029, F002 and F005	
<b>(22) Applicable TRUCON Content Numbers:</b> SR 125/225, SQ 154	
<b>(23) Acceptable Knowledge Information/Required Program Information</b>	
<b>(For the following, enter the supporting documentation used [i.e., references and dates])</b>	
<b>(23A) Map of site:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Attachments 1, 2 and 3	
<b>(23B) Facility mission description:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.1.4	
<b>(23C) Description of operations that generate waste:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.3 and 8.3	
<b>(23D) Waste identification/categorization schemes:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.4	
<b>(23E) Types and quantities of waste generated:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.2.1	
<b>(23F) Correlation of waste streams generated from the same building and process, as applicable:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.2.2	

(24) Waste certification procedures: CCP-TP-030, Revision 29, April 26, 2011	
(25) Required Waste Stream Information	
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 8.1	
(25B) Waste stream volume and time period of generation: CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 8.2	
(25C) Waste generating process description for each building: CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 8.3	
(25D) Waste Process flow diagrams: CCP-AK-SRS-3, Revision 9, April 26, 2010, Figures 4-1, 4-2, 4-3 and 4-4	
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 8.4	
(25F) Waste Material Parameter Weight Estimates per unit of waste: See table entitled "Waste Stream SR-W026-221F-HET-A Waste Material Parameters" in Summation of Aspects of AK Summary report: SR-W026-221F-HET-A	
(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 P1, P2, P3, P4, P5, P6, P7, P9, P10, P11, P12, P13, P14, P15, P16, P17, P19, P20, P21, P22, P23, P25, P32, P34, P38, P39, P41, P43, P44, P45, P46 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27C) Safety Analysis Reports: See D2, D34 and D35 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27D) Waste packaging logs: See M6 and M7 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27E) Test plans/research project reports: NA	
(27F) Site databases: See M1 and M22 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27G) Information from site personnel: See C2, C5, C6, C7, C9, C13, C16, C19, C20, C26, C27 and C29 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27H) Standard industry documents: See P27 and P28 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27I) Previous analytical data: See D8, M24, M46 and M64 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27J) Material safety data sheets: See M11, M40 and M45 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27K) Sampling and analysis data from comparable/surrogate Waste: NA	
(27L) Laboratory notebooks: NA	
Confirmation Information <sup>2</sup>	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
(28)	Radiography: CCP-TP-053, Revision 11, July 20, 2011
	Visual Examination: NA

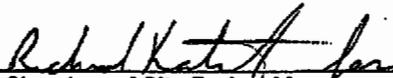
(29) Comments: For a list of the waste characterization procedures used and date of respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert: YES  Date: 10/31/2011

Reviewed by STR (if necessary): YES  N/A  Date: 11/1/2011

**Waste Stream Profile Form Certification:**

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

  
Signature of Site Project Manager

Beverly Schrock  
Printed Name

11/5/12  
Date

- NOTE:** (1) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.  
(2) There are only 5 55-gallon drums in this waste stream; all 5 drums were headspace gas sampled

# CHARACTERIZATION INFORMATION SUMMARY

WSPF # SR-W026-221F-HET-A

Lot 1

## TABLE OF CONTENTS

Characterization Information Cover Page.....	002
Correlation of Container Identification Numbers to Batch Data Report Numbers.....	003
CCP Headspace Gas UCL <sub>90</sub> Evaluation Form.....	004
Headspace Gas Summary Data.....	006
RTR/VE Summary of Prohibited Items and AK Confirmation.....	007
Reconciliation with Data Quality Objectives.....	008

**CCP Characterization Information Summary Cover P**

Waste Stream # SR-W026-221F-HET-A Lot #: 1  
 AK Expert Review: N/A Date: N/A  
 SPM Review: Richard Kantrowitz *RK* Date: 11/8/2011

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. 11	07/20/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	08/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/10	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
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**Headspace Gas Sampling and Analysis (HSG):**

CCP-TP-093	Rev. 16	09/07/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 15	03/10/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 14	12/29/10	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 7	12/29/10	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-173	Rev. 1	08/30/09	CCP Analysis of Gas Samples for VOCs by GC/FID
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. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/10	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	06/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 23	08/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 29	04/29/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 28	05/12/10	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

**WAP Certification:**

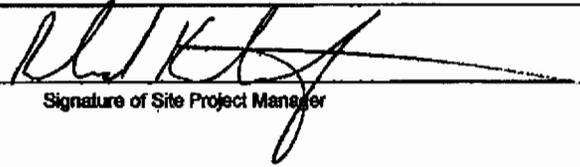
CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	05/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-004	Rev. 30	10/17/11	CCP/ISRS Interface Document
CCP-PO-004	Rev. 29	07/06/11	CCP/ISRS Interface Document

## CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # SR-W026-221F-HET-A

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	
FBL06026	SRLBC0232	SR9RTR0376	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G
FCAN04001	SRLBC0264	SR4RTR0128	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G
FCAN04002	SRLBC0264	SR4RTR0128	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G
FCAN04003	SRLBC0265	SR4RTR0128	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G
FCAN04004	SRLBC0299	SR4RTR0149	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G

  
Signature of Site Project Manager

Richard Kantrowitz  
Printed Name

11/8/2011  
Date

CR5003

# CCP Headspace Gas UCL<sub>90</sub> Evaluation Form

WSPF #: SR-W026-221F-HET-A

Waste Stream Headspace Gas Lot 1 through 1  
Number

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL <sub>90</sub> (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL <sub>90</sub> > PRQL Yes	EPA Hazardous Waste Number
Benzene	No	1	5	0.47	0.12	0.20	0.25	10	N/A		
Bromoform	Log	0	5	-4.34	-4.76	0.23	-4.60	10	2.30		
Carbon Tetrachloride	No	0	5	0.02	0.01	0.00	0.02	10	N/A		
Chlorobenzene	No	0	5	0.03	0.02	0.01	0.02	10	N/A		
Chloroform	No	0	5	0.04	0.03	0.01	0.03	10	N/A		
Cyclohexane <sup>a</sup>	Log	0	5	-3.01	-3.41	0.22	-3.25	10	2.30		
1,1-Dichloroethane	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
1,2-Dichloroethane	Log	0	5	-3.08	-3.45	0.22	-3.30	10	2.30		
1,1-Dichloroethylene	Log	0	5	-3.69	-4.08	0.22	-3.93	10	2.30		
cis-1,2-Dichloroethylene <sup>a</sup>	Log	0	6	-3.00	-3.39	0.22	-3.24	10	2.30		
trans 1,2-Dichloroethylene	Log	0	5	-3.13	-3.53	0.22	-3.38	10	2.30		
Ethyl benzene	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
Ethyl Ether	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
Methylene chloride	No	0	5	0.05	0.03	0.01	0.04	10	N/A		
1,1,2,2-Tetrachloroethane	No	0	5	0.02	0.01	0.00	0.02	10	N/A		
Tetrachloroethylene	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
Toluene	No	5	5	14.00	6.63	5.62	10.48	10	N/A	Yes	F005
1,1,1-Trichloroethane	Log	0	5	-3.86	-4.26	0.22	-4.11	10	2.30		
Trichloroethylene	Log	0	5	-3.69	-4.08	0.22	-3.93	10	2.30		
Trichlorofluoromethane <sup>a</sup>	No	0	5	0.04	0.03	0.01	0.04	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	5	0.02	0.02	0.00	0.02	10	N/A		
1,2,4-Trimethylbenzene <sup>a</sup>	No	0	5	0.03	0.02	0.01	0.03	10	N/A		
1,3,5-Trimethylbenzene <sup>a</sup>	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
m,p-Xylenes <sup>b</sup>	Log	0	5	-3.19	-3.59	0.22	-3.44	10	2.30		
o-Xylene	Log	0	5	-3.10	-3.50	0.22	-3.34	100	4.61		
Acetone	Log	5	5	1.39	0.52	0.61	0.94	100	4.61		
Butanol	No	1	5	0.38	0.11	0.15	0.21	100	N/A		
Methanol	No	0	5	14.50	14.30	0.27	14.49	100	N/A		
Methyl ethyl ketone	No	1	5	0.40	0.10	0.17	0.21	100	N/A		

GIS004

# CCP Headspace Gas UCL<sub>90</sub> Evaluation Form

WSPF #: SR-W026-221F-HET-A

Waste Stream Headspace Gas Lot 1 through 1  
Number

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL <sub>90</sub> (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL <sub>90</sub> > PRQL Yes	EPA Hazardous Waste Number
Methyl isobutyl ketone	No	0	5	0.03	0.02	0.01	0.02	10	N/A		
Chloromethane <sup>a</sup>	No	1	5	0.29	0.08	0.12	0.16	10	N/A		
Carbon Disulfide <sup>a</sup>	Log	1	5	-2.54	-3.39	0.52	-3.03	10	2.30		
1,2-Dichloropropene <sup>a</sup>	No	0	5	0.03	0.02	0.01	0.02	10	N/A		
Formaldehyde <sup>a</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine <sup>d</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

<sup>a</sup> 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.

<sup>b</sup> 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."

<sup>c</sup> Required only for homogenous solids and soil/gravel waste from Savannah River Site.

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

<sup>e</sup> These compounds are reported by the Laboratory and are included for completeness.

**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.)

  
 \_\_\_\_\_  
 Signature of Site Project Manager

Richard Kantrowitz  
 \_\_\_\_\_  
 Printed Name

11/8/2011  
 \_\_\_\_\_  
 Date

CIS005

# CCP Headspace Gas Summary Data

Waste Stream Number

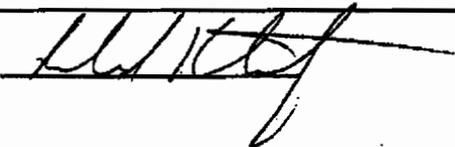
SR-W026-221F-HET-A

Lot Number (s)

1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	N/A	N/A	N/A
<p style="text-align: right;"> <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No                 </p> <p>Data Supports EPA Hazardous Waste Numbers Assigned by AK?</p>			
If no, describe the basis for assigning the EPA Hazardous Waste Codes:			

SPM Signature



Date

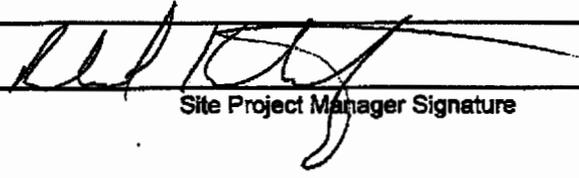
11/8/2011

# CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: SR-W026-221F-HET-A

Lot(s)#: 1

Container Number	RTR Prohibited Items <sup>a,b</sup>	Visual Examination Prohibited Items <sup>a,b</sup>
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.
<p>a. See Batch Data Reports</p> <p>b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).</p>		
<p>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-W026-221F-HET-A.</p>		



Site Project Manager Signature

Richard Kantrowitz  
Printed Name

11/8/2011  
Date

## CCP Reconciliation with Data Quality Objectives

WS# SR-W026-221F-HET-A

Lot # 1

### Sampling Completeness

#### RTR/VE:

Number of Valid Samples: 5      Number of Total Samples Analyzed: 5  
Percent Complete: 100 (QAO is 100%)

#### NDA

Number of Valid Samples: 5      Number of Total Samples Analyzed: 5  
Percent Complete: 100 (QAO is 100%)

#### HSG

Number of Valid Samples: 5      Number of Total Samples Collected: 5  
Percent Complete: 100 (QAO is  $\geq 90\%$ )  
Number of Valid Samples: 5      Number of Total Samples Analyzed: 5  
Percent Complete: 100 (QAO is  $\geq 90\%$ )

#### Total VOC

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

#### Total SVOC

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

#### Total Metals

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

## CCP Reconciliation with Data Quality Objectives

WS# SR-W026-221F-HET-A

Lot # 1

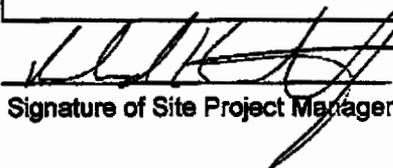
	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability 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 <sub>90</sub> 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 <sub>90</sub> 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 <sub>90</sub> ) 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 <sub>90</sub> ) 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-W026-221F-HET-A

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.		
		<b>Completeness</b>	<b>Comparability</b>	<b>Representativeness</b>
	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

11/8/2011  
Date

**SUMMATION OF ASPECTS OF AK SUMMARY REPORT: SR-W026-221F-HET-A****Overview:**

The SR-W026-221F-HET-A waste stream consists of 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. The Building 221-F (F-Canyon and FB-Line) had two functions: 1) to convert dilute plutonium solution into highly purified plutonium metal; and 2) to recover weapons-grade plutonium from scrap materials produced during FB-Line operation and from scrap material shipped to the SRS from other off-site facilities. In 1999, the mission was expanded to include material characterization which included characterization and repackaging of scrap containing plutonium and uranium oxides from FB-Line, the F-Area Material Storage facility, and off-site facilities. Suspension of the plutonium production mission was completed in March 2002, and deactivation of limited areas of the FB-Line began. Deactivation of FB-Line operations was completed in July 2006 and is pending decommissioning. 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 TRU mixed debris waste generated in Building 221-F (F-Canyon and FB-Line). Building 221-F was a Department of Energy (DOE) defense nuclear materials production facility where fission products were separated from plutonium solutions in F-Canyon and then the dilute plutonium solutions were concentrated and purified into weapons-grade plutonium metal in FB-Line for weapons use throughout the time period of waste generation.

This summation of the Acceptable Knowledge (AK) Summary Report includes information to support Waste Stream Profile Form (WSPF) number SR-W026-221F-HET-A for mixed heterogeneous debris waste from SRS. The primary source of information for this Summation is CCP-AK-SRS-3, Central Characterization Project Acceptable Knowledge Summary Report For Savannah River Site, Waste Streams: SR-W026-221F-HET, SR-W026-221F-HOM, SR-W026-221F-HEPA, SR-W026-221F-HET-A, Revision 9, April 26, 2010.

**Waste Stream Identification Summary:**

<b>Waste Stream Name:</b>	Heterogeneous Debris from F-Canyon and FB-Line Facilities
<b>Waste Stream Number:</b>	SR-W026-221F-HET-A
<b>Dates of Waste Generation:</b>	June 2004 to November 2005
<b>Waste Stream Volume – Current:</b>	5 55-gallon drums
<b>Waste Stream Volume – Projected:</b>	None
<b>Summary Category Group:</b>	S5000 – Debris Wastes

Waste Matrix Code Group: Heterogeneous Debris Waste  
Waste Matrix Code: S5400  
TRUCON Content Numbers: SR 125/225, SQ 154  
Annual Transuranic Waste Inventory Report  
(ATWIR) Identification Number: SR-W026-221F-HET-A

**Waste Stream Description and Physical Form:**

Waste stream SR-W026-221F-HET-A consists of small pieces of equipment were removed from the FB-Line Mechanical Line, and Berl (ceramic) saddles were removed from the F-Canyon dissolver off-gas system. The waste consists primarily of Berl saddles, but also includes metal electrical equipment (e.g., scales, detectors, nickel-cadmium batteries), small amounts of plastic (e.g., bags, bottles, tape), and cellulosic absorbent pads. A single Berl saddle is 0.5-inches wide and about 0.7-inches in length and is composed primarily of silicon dioxide and aluminum oxide.

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 is a small population of containers generated during Building 221-F (F-Canyon and FB-Line) plutonium production and associated suspension and deactivation operations.

**Point of Generation:**

**Location**

Waste stream SR-W026-221F-HET-A was generated at SRS in Aiken, South Carolina. The waste is currently stored at the SRS RWBG and SWMF.

**Area and/or Buildings of Generation**

Waste stream SR-W026-221F-HET-A was generated Building 221-F (F-Canyon and FB-Line) which is located in the 200-F Separations Area.

**Generating Processes:**

**Description of Waste Generating Processes**

This waste stream was generated during plutonium production and associated suspension and deactivation operations in Building 221-F (F-Canyon and FB-Line). Specifically, the F-Canyon waste was generated from the process off-gas system, and the FB-Line waste was generated from the Mechanical Line.

### Process Off-Gas System

Irradiated targets, which consisted of a cylinder of depleted uranium clad in aluminum, were brought into F-Canyon and loaded into a large tank called a dissolver. Sodium hydroxide was used to remove the aluminum cladding from the targets. The cladding solution was transferred to the High-Level Waste tanks. Volatiles generated during the dissolution were ducted to the dissolver off-gas system. This system included two iodine reactors designed to remove radioactive iodine (I-129) from the off-gas. The off-gas entered the reactor cartridge where radioactive iodine was removed by contacting a bed of silver nitrate-impregnated reaction media. The media consisted of ceramic saddle-shaped pieces called Berl saddles. Silver iodide and silver iodate were formed in the reaction.

### Mechanical Line

The Mechanical Line was a series of cabinets/gloveboxes involved in the plutonium recovery process. Primary operations performed in the Mechanical Line include reduction and finishing, drying and conversion, and plutonium metal finishing. A roasted mixture of plutonium tetrafluoride and plutonium oxide was dumped from the roasting pan into a mixing container. The material was weighed, calcium metal was added, and materials were mixed in a mixer-dumper. The mixture was then dumped into a pressure chamber containing a magnesium oxide crucible nested in magnesium oxide sand. The crucible was covered with a stainless-steel lid and the reduction vessel was sealed and placed in one of two reduction furnaces. After reduction and cooling, the impure metal was dumped from the reduction vessel, marked for identification, pickled with nitric acid, drilled to obtain an analytical sample, weighed, and packaged for storage in the vaults.

### Suspension and Deactivation

SRS was directed by the U.S. Department of Energy to suspend operations in F-Canyon and FB-Line and deactivate these facilities. Suspension occurred in four distinct phases: 1) product stabilization, 2) de-inventory, 3) facility stabilization and equipment shutdown/isolation, and 4) surveillance & maintenance (S&M) and material management. Phase 1 involved the production of the last plutonium button from F-Canyon solution and disposition of the sand, slag, and crucible produced from remaining FB-Line button production. In Phase 2, plutonium bearing vessels were emptied and the solution discarded to the canyon. Equipment was flushed and/or shutdown in Phase 3. Chemicals used for flushing included process water, sodium hydroxide, nitric acid, and aluminum nitrate nano-hydrate. Phase 4 S&M involved continued operation of certain FB-Line equipment necessary to maintain a safe and environmentally sound configuration.

Deactivation is the process of placing a facility in a safe, stable, and known condition by elimination or reduction of residual hazards. Transferable contamination was controlled by confinement, isolation, removal, or fixing techniques. Wastes were also generated from the removal of piping and equipment, although much of the equipment was left in place, including

process filters in cabinets. Unattached combustible materials were usually removed, but in certain instances, cabinet gloves and other combustibles, and small amounts of liquid and material hold-up, were left in place.

### Waste Stream Material and Chemical Inputs

The following table identifies the RCRA toxicity characteristic and listed constituents identified in this waste stream.

### Toxicity Characteristic and Listed Constituents in Waste Stream SR-W026-221F-HET-A

Chemical	EPA HWN
Cadmium	D006
Chromium	D007
Lead	D008
Mercury	D009
Silver	D011
Carbon Tetrachloride	D019
Chloroform	D022
1,2-Dichloroethane	D028
1,1-Dichloroethylene	D029
1,1,1-Trichloroethane	F002
Chlorobenzene	F002
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	F002
Methylene chloride	F002
Tetrachloroethylene	F002
Trichloroethylene	F002
Benzene	F005
Carbon disulfide	F005
Isobutanol	F005
Toluene	F005

### RCRA Determinations

#### Historical Waste Management

Waste stream SR-W026-221F-HET-A has been historically 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, a site specific waste stream was not created for this debris waste stream. Instead, containers were managed individually as hazardous waste. The original SRS Environmental Protection Agency (EPA) hazardous waste number (HWN) assignments have been retained (i.e., D006, D008, D011). However, a review of available AK documentation has determined that additional HWNs apply to this waste stream because it includes waste from the Mechanical Line. Therefore, the HWNs summarized below will be assigned to the containers in this waste stream (Reference DR010).

## **Hazardous Waste Determinations**

### **Ignitability, Corrosivity, Reactivity**

This waste does not exhibit the characteristic of ignitability as defined in Title 40 Code of Federal Regulations (CFR) 261.21. Ignitable liquids (e.g., acetone, n-butyl alcohol, toluene) and oxidizers (e.g., aluminum nitrate, silver nitrate) were used in F-Canyon and FB-Line operations. However, 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. The materials are not liquid; materials were allowed to dry or absorbed prior to disposal. Therefore, this waste does not exhibit the characteristic of ignitability (D001) (References C61, D4, D5, M63, M64, P1, P2, P3, P5, P6, P16, P30, P31, P32, and P33).

This waste does not exhibit the characteristic of corrosivity as defined in 40 CFR 261.22. Corrosive liquids were used; for example, nitric acid was used to leach silver and other solubles from the Berl saddles. However, the nitric acid solution was collected and removed from the Berl saddle waste. The materials are not liquid; materials were allowed to dry or absorbed using cellulosic absorbent pads prior to disposal. Therefore, this waste does not exhibit the characteristic of corrosivity (D002) (References C61, D4, D5, M63, M64, P1, P2, P3, P5, P6, P16, P30, P31, P32, and P33).

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 are not a cyanide or sulfide bearing waste. The materials are not capable of detonation or explosive reaction. Therefore, this waste stream does not exhibit the characteristic of reactivity (D003) (References C61, D4, D5, M63, M64, P1, P2, P3, P5, P6, P16, P30, P31, P32, and P33).

The containers in the waste stream will be evaluated in accordance with the WIPP-WAP using radiography prior to shipment to ensure the waste is not ignitable, reactive, or corrosive.

### **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 as a component of dry cell nickel-cadmium batteries. Chromium (D007) was identified as an ingredient of a corrosion inhibitor and may be present as a corrosion product of stainless steel. Lead (D008) was identified as a component of solder from electrical equipment (e.g., scales, detectors). Mercury (D009) was identified as an ingredient in process chemicals, component of

equipment (e.g., thermometers, manometers, and gauges), and contaminant of Berl saddles. Silver (D011) was identified as an ingredient in process chemicals and contaminant of Berl saddles. Therefore, EPA HWNs D006, D007, D008, D009, and D011 are assigned to the waste stream (References D2, D10, DR010, M63, M64, P2, and P3).

Based on the evaluation of the AK source documentation, this waste stream may contain or be contaminated with toxicity characteristic organic compounds. Since both waste streams SR-W026-221F-HET and SR-W026-221F-HET-A include waste generated in the Mechanical Line, toxicity characteristic organics identified by headspace gas in SR-W026-221F-HET could also be present in SR-W026-221F-HET-A. The toxicity characteristic organics detected in waste stream SR-W026-221F-HET headspace gas samples included carbon tetrachloride (D019), chloroform (D022), 1,2-dichloroethane (D028), and 1,1-dichloroethylene (D029). Other constituents were also detected (i.e., benzene [D018], chlorobenzene [D021], tetrachloroethylene [D039], trichloroethylene [D040]); however, the more specific F-listed EPA HWNs have been assigned for these compounds (see F-Listed Waste discussion). Therefore, EPA HWNs D019, D022, D028, and D029 are assigned to the waste stream (References DR010, M24, and M64).

### **Listed Waste**

#### **F-Listed Waste**

This waste stream may contain or be mixed with F-listed hazardous wastes from non-specific sources as listed in 40 CFR 261.31. F001, F002, F003, and F005 listed solvents could potentially contaminate the waste; however, specific solvent uses were not identified. Since both waste streams SR-W026-221F-HET and SR-W026-221F-HET-A include waste generated in the Mechanical Line, F-listed constituents identified by headspace gas in SR-W026-221F-HET could also be present in SR-W026-221F-HET-A. The F-listed HWNs assigned to waste stream SR-W026-221F-HET-A are the same as those assigned to SR-W026-221F-HET with the exception of F001 and F003 as explained below (References DR010, M24, and M64).

The F001-listed solvents carbon tetrachloride, methylene chloride, tetrachloroethylene, and trichloroethylene may be present in this waste, and F001 is assigned to waste stream SR-W026-221F-HET. However, EPA has provided a regulatory clarification that the F001-listing is only appropriate when listed solvents are used in a large-scale degreasing operation, such as cold cleaning or vapor degreasing on an industrial scale. This waste was not generated from large-scale degreasing operations, and therefore, EPA HWN F001 is not assigned to the waste stream (References DR010 and M24).

The F003-listed solvents acetone, cyclohexanone, ethyl acetate, ethyl benzene, ethyl ether, methanol, methyl isobutyl ketone, n-butyl alcohol, and xylene may be present in this waste, and F003 is assigned to waste stream SR-W026-221F-HET. However, F003-listed solvents are listed solely for ignitability and waste stream SR-W026-221F-HET-A does not exhibit ignitability because the solvents are not in liquid form. Therefore, EPA HWN F003 is not assigned to the waste stream (References DR010 and M24).

Therefore, F-listed EPA HWNs F002 (1,1,1-trichloroethane, chlorobenzene, Freon 113 [1,1,2-trichloro-1,2,2-trifluoroethane], methylene chloride, tetrachloroethylene, and trichloroethylene) and F005 (benzene, carbon disulfide, isobutanol, and toluene) are assigned to the waste stream (References DR010 and M24).

### **K-Listed Waste**

This waste stream does not include any of the manufacturing process wastes from the specific industries or sources listed in 40 CFR 261.32.

### **P- and U-listed Wastes**

This waste stream was not 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. No P- or U-listed wastes were identified on the container paperwork (e.g., 29-90 forms). Also, chemicals are present only as spent and contamination waste material, rather than as pure commercial chemical product. There is also no indication that the U-listed waste found in other FB-Line waste is present in this waste stream (e.g., acetone, mercury). Process chemicals were used for their intended purposes and were not disposed of as pure or unused chemical product (References D3, D12, D19, M64, and P11).

Materials that contained weapons-grade plutonium and beryllium were processed in the FB-Line facility. Typical job control waste contaminated with beryllium was generated. Beryllium was listed as present on the 29-90 form for one drum in this waste stream. However, the beryllium was not in the form of unused beryllium powder and, therefore, is not a P015-listed waste (References D3, D12, D19, M64, and P11).

Hydrofluoric acid was used in FB-Line operations. However, hydrofluoric acid was used for its intended purposes and was not disposed of as pure or unused chemical product. Therefore, EPA HWN U134 is not assigned to the waste stream (References D3, D12, D19, M64, and P11).

Therefore, this waste stream is not assigned P- or U-Listed EPA HWNs.

### **Polychlorinated Biphenyls (PCBs)**

PCBs are not expected to be present in this waste. Based on the materials in this waste stream and the extensive efforts to remove electrical equipment containing PCBs in the mid-1980s, PCB items are not expected to be present. Therefore, this waste stream is not regulated as a Toxic Substance Control Act waste under 40 CFR 761 (References C3 and C4).

### **Prohibited Items**

Real-time radiography (RTR) has determined that no prohibited items are present in this waste stream.

**Method for Determining Waste Material Parameters (WMPs) Weights per Unit of Waste**

WMP weights are estimated by the generator and recorded on the 29-90 form. The specific type of metal the equipment (scales and detectors) is comprised of was not provided, but the generator listed it on the 29-90 form as "Other Metals/Alloys". A statistical analysis of the 29-90 data was performed, the results of which are presented in the below table.

**Waste Stream SR-W026-221F-HET-A Waste Material Parameters**

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	0.0%	0.0 - 0.0%
Aluminum-based Metals/Alloys	0.0%	0.0 - 0.0%
Other Metals	5.2%	0.0 - 85.4%
Other Inorganic Materials	89.3%	0.0 - 95.2%
Cellulosics	0.1%	0.0 - 2.1%
Rubber	0.0%	0.0 - 0.0%
Plastics (waste materials)	5.4%	4.8 - 12.5%
Organic Matrix	0.0%	0.0 - 0.0%
Inorganic Matrix	0.0%	0.0 - 0.0%
Soils/gravel	0.0%	0.0 - 0.0%

**List of AK Sufficiency Determinations Requested for the Waste Stream**

There are no AK sufficiency determination requests 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 payload container.

**Radionuclide Information**

To determine the radionuclide distribution in this waste stream, data from 29-90 forms were evaluated. The evaluation indicates that Pu-239 and I-129 are the two most prevalent radionuclides, by mass. Nondestructive assay cannot measure I-129; however, this is of no consequence because the WIPP Waste Acceptance Criteria does not specifically require reporting of I-129, and it has an unlimited A2 value (reference 49 CFR 173.435) which means it does not contribute to 95% of the radiological hazard for transportation. With I-129 excluded from the calculation, the two most prevalent radionuclides, by mass, in this waste stream are Pu-239 and Pu-240, respectively.

**Radiological Distribution for Waste Stream SR-W026-221F-HET-A**

Radionuclide	Total Radionuclide Wt% <sup>1</sup>	Radionuclide Wt% Range for Individual Drums <sup>2,4</sup>	Suspected Present (Yes/No)
Am-241	0.62%	0.41 – 0.64%	Yes
Pu-238	0.01%	Trace – 0.04%	Yes
Pu-239	89.12%	54.70 – 93.11%	Yes
Pu-240	5.71%	5.69 – 5.80%	Yes
Pu-242	0.04%	0.03 – 0.15%	Yes
U-233	Trace <sup>3</sup>	0 – Trace	Yes
U-234	0.01%	0 – 0.12%	Yes
U-238	2.84%	0 – 27.28%	Yes
Sr-90	Trace	0 – Trace	Yes
Cs-137	0.03%	0 – 0.04%	Yes
<b>Additional Radionuclides</b>			
Ba-137m	Trace	0 – Trace	Yes
Cm-244	Trace	0 – Trace	Yes
Co-60	Trace	0 – Trace	Yes
Eu-154	Trace	0 – Trace	Yes
Eu-155	Trace	0 – Trace	Yes
H-3	Trace	0 – Trace	Yes
Ni-59	Trace	0 – Trace	Yes
Ni-63	Trace	0 – Trace	Yes
Np-237	0.01%	0 – 0.09%	Yes
Pu-241	0.45%	0.22 – 0.48%	Yes
Tc-99	Trace	0 – Trace	Yes
Th-232	Trace	0 – Trace	Yes
U-235	1.16%	0 – 11.14%	Yes
U-236	Trace	0 – 0.05%	Yes
Y-90	Trace	0 – Trace	Yes

<sup>1</sup> This indicates the total weight percent of each radionuclide over the waste stream.

<sup>2</sup> This is the range of each radionuclide on a drum-by-drum basis.

<sup>3</sup> "Trace" indicates <0.01 wt% for that radionuclide.

<sup>4</sup> A zero value for a lower range indicates that some drums did not contain the radionuclide of interest.

Payload management will not be utilized for this waste stream.

## Source Documents

Source Document Tracking Number	Title
C1	Miscellaneous Correspondence on Solvent Contaminated Waste
C2	PCB Committee: Meeting No. 1
C3	Polychlorinated Biphenyls (PCBs) Used In Electrical Equipment
C4	PCB Inventory Changes During Calendar Year 1984
C5	Interview of R.E. Lynn, J.B. Schaade: Radiological Characterization of Post-90 FB-Line Waste
C6	Interview of M. B. Reuis: FB-Line Practice Relating to Number of Layers of Confinement
C7	Interview of M. B. Reuis: Absorption and Neutralization of Free Liquids
C8	Electronic Mail Message to P. Fulghum: "Squib" Igniters Used In "Halex" Fire Suppression
C9	Interview of E.R. Hackney: Decontamination Agents Used in the FB-Line
C11	Memo to J.S. Bellamy: Impact of Proposed Change in Plutonium Isotopics on FB-Line Low-Level Waste Radioisotopic Characterization
C12	Memo: Specifications for Plutonium Shipped to the Rocky Flats Plant
C13	Telecon Record: Call to P.J. Spitzer - Starting Date for Operations Inside Refurbished Special Recovery Cabinets 6-8
C15	Memo to H.W. Fincher, J.W. McClard: FB-Line TRU Waste Characterization Data
C16	Interview of FB-Line Personnel: FB-Line Operations from Approximately 1986 to 1990
C17	Letter: Waste Matrix Code Assignment for Transuranic Waste Stream SR-T001-221F-HET/Drums
C19	Interview of J.W. McClard: (trans)-1,2-Dichloroethylene and Formaldehyde use in the FB-Line
C20	Interview of D. Gracy: Material Characterization Cabinets in FB-Line
C21	R.S. Thomason to C.J. Ward; Mass and Activity Values for FB-Line and HB-Line TRU Waste(U)
C22	A. Gibbs to S.J. Mentrup; Plutonium Isotopic Content of Waste Streams
C23	Inter-Memorandum: Corrected Values for FB-Line TRU Waste Drums Sent to the Solid Waste Disposal Facility From 1985 to 1992 (U)
C25	Memorandum to K.D. Stegg re: FB-Line Mixed Waste Certification Assessment Status (U)
C26	Record of Communication - Interview with Steve Bellamy, Nuclear Materials Production Division re: Mixed waste at FB-Line, 1990 to present
C27	Telephone conversation with Carol Allgood, NMMD re: Blue Dot program at FB-Line and HB-Line
C28	Memorandum re: Information on TRU Waste Characterization in Support of the WIPP No-Migration Variance Petition
C29	Record of Communication with G.F. Lunsford re: Isotopics for Requested Off-Site Account

<b>Source Document Tracking Number</b>	<b>Title</b>
C58	Memo to CCP Central Records: Beryllium Evaluation for AK Summary Report CCP-AK-SRS-3
C59	Email correspondence regarding the addition of drums to the SRS-3 HET waste stream
C60	Interview with Dennis Gracy, Systems Engineer for Material Characterization Cabinet: Deactivation Activities
C61	Memo to K.J. Collins, Hazardous Determination for FB-Line Materials
C62	Defense Nuclear Safety Board Memo for J. Kent Fortenberry
C63	E-mail Correspondence from Linda Ledbetter re: SEVEMR0072
C64	E-mail Correspondence from Jennifer Biedscheid re: TRAMPAC Question
C65	Letter to AK Record from James Schoen re: Evaluation of Volume, Period Generation, and Calculation of Individual and Total Radionuclide Masses and Activities for Waste Stream SR-W026-221F-HET
C66	Letter to AK Record from James M. Schoen re: Evaluation of Volume, Period Generation, and Calculation of Individual and Total Radionuclide Masses and Activities for Waste Stream SR-W026-221F-HOM
C67	Memo from R. C. Hochel re: TRU Boxed Waste Measurement Task Team Meeting Minutes 6/23/89
C69	Memorandum from James Schoen to CCP Records re: Reconciliation of Waste Containers List for Waste Streams SR-W026-221F-HEPA, SR-W026-221F-HET, SR-W026-221F-HET-A, and SR-W026-221F-HOM
C70	Future TRU Waste Generation for CCP-AK-SRS-3 TRU / MTRU Waste Streams
D1	Savannah River Site Atlas
D2	Safety Analysis--200 Area Savannah River Plant FB-Line Operations
D3	FB-Line Basis for Interim Operation (U)
D4	Savannah River Site Waste Acceptance Criteria Manual-1S, E-Area TRU Pads-Transuranic Waste Acceptance Criteria
D5	SRS Data Preparation for the 1995 WIPP TRU Waste Baseline Inventory Report, Mixed Waste Inventory Report, and Integrated Database (U)
D6	Radioisotope Characterization of FB-Line Low-Level Waste
D7	Memo to L. Rykken: FB-Line Low-Level Waste Smear Analysis Results Evaluation
D8	FB-Line Facility Radioisotopic Sampling Plan
D9	Technical Basis for the Container Examination and Evaluation Program (U)
D10	Separations FB-Line Facility Transuranic (TRU) Waste Certification Program
D11	Transmittal of SRS Audit Report of September 1989 to M.G. O'Rear
D12	The FB-Line Facility: A Training Aid Document
D13	Transmittal Memo to M.G. O'Rear: Waste Acceptance Criteria Certification Committee Audit of Savannah River Certification Activities
D15	Nuclear Criticality Safety Supplement Building 221-F, FB-Line: Material Characterization in Cabinets 6-8

Source Document Tracking Number	Title
D16	Savannah River Certification Plan for Newly Generated, Contact-Handled Transuranic Waste
D19	FB-Line TRU Waste Characterization Plan
D21	Material Control and Accountability Measurements for FB-Line Processes
D22	FB-Line NDA Lab Operator Aid for Analytical Laboratory Technicians - Isotopic Distribution
D24	Westinghouse Savannah River Company Annual Report 2003
D25	Westinghouse Savannah River Company Annual Report 2004
D26	Washington Savannah River Company Annual Report 2005
D27	F-Canyon Suspension and Deactivation Safety Analysis Report
D28	Material Control & Accountability Activities Associated with the FB-Line Deactivation and Downgrade to an Inactive Category IV Material Balance Area.
D29	Stabilizing And Packaging Pu Materials per 3013 At SRS
D30	SRS Waste Acceptance Criteria Manual, Manual number 1S, Transuranic Waste Container Characterization Form OSR 29-30 Instructions Appendix A 23
D31	F-Canyon/FB-Line Facilities PUREX Operations Suspension Plan
D32	F-Canyon Complex Deactivation Project Plan, Building 221-F F-Canyon/FB-Line Facilities
D33	F-Canyon Complex, Post Deactivation Surveillance and Maintenance Plan & Implementation Manual
D34	Safety Analysis Report, Savannah River Site, FB-Line
D35	Safety Analysis Report, Savannah River Site, F-Canyon, FA-Line and Outside Facilities
DR001	Acceptable Knowledge Source Document Discrepancy Resolution, Waste Stream SR-W026-221F-HOM Physical Waste Form
DR002	Acceptable Knowledge Source Document Discrepancy Resolution, Waste Stream SR-W026-221F-HOM EPA Hazardous Waste Numbers
DR003	Acceptable Knowledge Source Document Discrepancy Resolution, Wooden-Framed HEPA Filters
DR008	Acceptable Knowledge Source Document Discrepancy Resolution, Calcium Reactivity
DR010	Acceptable Knowledge Source Document Discrepancy Resolution, Waste Stream SR-W026-221F-HET-A EPA Hazardous Waste Numbers
DR011	Acceptable Knowledge Source Document Discrepancy Resolution, Waste Stream SR-W026-221F-HOM Physical Waste Form
DR012	Acceptable Knowledge Source Document Discrepancy Resolution, SR171857, SR503013, SR503013A
DR013	Acceptable Knowledge Source Document Discrepancy Resolution, Cresol and Phenol in Solid Sampling and Analysis of Waste Stream SR-W026-221F-HOM
M1	AK Tracking Spreadsheet
M2	Specification for Procurement of TRU Waste Storage Drums
M3	Procurement Specification for 90 Mil Polyethylene Drum Liner/Lid

Source Document Tracking Number	Title
M4	Procurement Specification for 55 Gallon Painted Steel Drum
M5	Procurement Specification for 3/4 Inch Diameter Drum Filter Vents (U)
M6	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms)
M7	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms)
M8	Unreviewed Safety Question Process USQ Screening - Part A: Rev. 17 of SOP 221-FB-2504-NS
M9	USQD Summary Sheet for Referencing Previous USQD: Rev.1 to SOP 221-FB-2505-A-NS; "Packaging TRU Material Characterization Waste into a TRU Drumliner (U)."
M10	Unreviewed Safety Question Process: Revise Procedures for Transporting and Assaying Red Pail Waste
M11	Material Safety Data Sheets
M12	FACTSHEET: Lighting Waste Management
M13	Unreviewed Safety Question Process Form - Approval of IPC #98-0301-FBL to SOP 221-FB-2502-A-NS, Packaging General and Cabinet Waste Into a Red Pail (U)
M14	Unreviewed Safety Question Process: Implementing Procedures for Packaging Material Characterization Waste Directly Into a Drum Liner
M15	Unreviewed Safety Question Process Form: Approval of IPCs to Support Q2 Operations (U)
M17	USQD Summary Sheet for Referencing Previous USQD
M19	USQD Summary Sheet for Referencing Previous USQD
M20	USQD Summary Sheet for Referencing Previous USQD
M21	USQD Summary Sheet for Referencing Previous USQD
M22	Uncontrolled SRS Database for Post-1990 FB-Line Waste
M24	Headspace Gas Data from the SRS Project
M26	Request/Approval for Deviation to SRS Waste Acceptance Criteria Manual
M27	Waste Characterization for FB Line Drums Contaminated with Beryllium
M28	Evaluation of Additional Containers for SRS-3 Waste Streams SR-W026-221F-HET and SR-W026-221F-HOM (FB-Line)
M29	Evaluation of 52 Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line)
M30	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for drum additions
M31	Acceptable Knowledge Payload Management Calculations for CCP-SRS AK Reports 1 through 7
M32	Acceptable Knowledge Beryllium Assessment for CCP-SRS AK Reports 1 through 7
M33	Evaluation of 79 Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line)

Source Document Tracking Number	Title
M34	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for drums added 6/1/05
M35	Email from Jeff Lunsford dated 8/31/2005. SRS Inventory Update
M36	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for Drums Added May 15, 2006
M37	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line), May 15, 2006
M38	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line)
M39	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for Drums Added July 19, 2006
M40	Material Safety Data Sheets
M41	Characterization Data on various Drums from the FB-Line
M42	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line) dated August 18, 2008; Container Paperwork for additional drums (29-90s): FBL05127 and FBL06035; and RTR Quick Screens for both drums
M43	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for 8/18/07 Drum Additions to SR-W026-221F-HET.
M44	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for Waste Stream SR-W026-221F-HOM
M45	Material Safety Data Sheets Applicable to Waste Stream SR-W026-221F-HOM
M46	RTR Quick Screen Data Sheets for Waste Stream SR-W026-221F-HOM
M47	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HOM (FB-Line)
M48	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for FB Line Containers
M49	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M50	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA
M51	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M53	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M54	Evaluation of Additional Containers for SRS-3 Waste Stream Sr-W026-221F-HEPA (FB-Line)
M55	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)

<b>Source Document Tracking Number</b>	<b>Title</b>
M57	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M58	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M59	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET and SR-W026-221F-HOM
M60	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA
M61	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA
M62	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA
M63	Request for Deviation to SRS Waste Acceptance Criteria Manual - Berl Saddles
M64	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for F-Canyon Facility and FB-Line
M65	Physical Form and Radiological Evaluation Spreadsheets
M68	Add Container Memo for Containers SR514741, SR514741A, and SR123429B
P1	Packaging General and Cabinet Waste Into Red Pails (U)
P2	Drumming Red-Pail Waste for Shipment To Solid Waste Disposal Facility (U)
P3	Packaging TRU (Process Cabinet or Fissile TRU) Waste Into A TRU Drum Liner
P4	Packaging TRU (Excluding Process Cabinet Waste) Into a TRU Drum Liner
P5	Packaging TRU Hut Waste (Excluding Process Cabinet Waste) Into a TRU Drum Liner
P6	Packaging TRU Hut Waste (Excluding Process Cabinet Waste) and TRU Decontamination Waste Into A TRU Drum Liner
P7	Controlled Procurement and Handling of Chemical and Blue Dot (Hazardous) Products
P8	Item 7.02, Chemical Control Program in FB Line Facilities
P9	Removing Oil from Mechanical Line Hydraulic Sumps Removing Hydraulic Fluid From Mechanical Line Hydraulic Sumps (U)
P10	Cleaning Wet Cabinet Sumps and Neutralizing Sump Waste (U) Cleaning Wet Cabinet Sumps or Pipe Duct Sumps and Neutralizing Sump Waste (U)
P11	Cold Chemical Cleanup (U)
P12	Handling Mechanical Line Cabinet Sweepings Sweeping Mechanical - Line Cabinets (U) Sweeping or Vacuuming Mechanical Line Cabinets (U)
P13	Handling and Weighing of Calcium
P14	Constructing a Plastic Hut
P15	Introducing or Removing Material Through Bag Ports
P16	Packaging Material Characterization Cabinet Waste Into a Drumliner

Source Document Tracking Number	Title
P17	Packaging and Handling HEPA Filter Waste
P18	Plutonium Packaging, Storage and Transfer Record
P19	Decontamination and Decontamination Waste Handling Activities
P20	Separations FB-Line Facility Low Level/Mixed Waste Certification and Minimization Plan
P21	Measuring 55-Gallon Waste Drums on the Drum Counter (U)
P22	TRU Drum Assembly (U)
P23	Transporting, Assaying, and Storing Red-Pail Waste (U)
P25	TRU Waste Data Package Requirements
P26	NMPT Lesson Plan, FB-Line Low Level Waste Handling, RCRA Compliance, Waste Minimization and Hazardous Material Transportation
P27	High-Efficiency Particulate Air (HEPA) Filter, Fire-Resistant (250 degree min), Cylindrical Specification 3
P28	High-Efficiency Particulate Air (HEPA) Filter, Fire-Resistant Specification 2
P29	Facility Disposition Manual 1C, Facility Disposition Program Overview
P30	Packaging General and Cabinet Waste into a Red Pail
P31	Packaging TRU Material Characterization Waste from Red Pails into a TRU Drumliner
P32	Packaging TRU Material Characterization Waste From Red Pails Into A TRU Drumliner
P33	Packaging Special Cabinet Waste into a Red Pail
P34	Absorbing Containerized Liquids
P35	TRU Drum Remediation Process
P36	TVEF Operations
P37	MRS Operations
P38	TRU Drum Repackaging
P39	Shipment Preparation for TRU Containers to SWMF
P41	Black Box Repackaging
P43	Absorbing Containerized Liquids
P44	Transuranic (TRU) Waste Repackaging in H-Canyon
P45	SWMF Blackbox Repackaging
P46	F Canyon Container transfer
P47	TRUPACT-II Loading and Shipping Project Work Scoping Document

**Gilbert, Patsy - LANL**

---

**From:** Site Documents - DOE  
**Sent:** Thursday, January 19, 2012 10:06 AM  
**To:** 'john.kieling@state.nm.us'  
**Cc:** Stroble, J. R. - DOE; Hall, Timothy; Holmes, Steve; Kliphuis, Trais  
**Subject:** CORRECTED: Review of SRS/CCP Waste Stream Profile Form Number SR-W026-221F-HET-A  
**Attachments:** 12-0403.pdf; Corrected SR-W026-221F-HET-A WSPF 1.19.12.pdf

Per NTP, attached is the corrected WSPF for SR-W026-221F-HET-A that was submitted to your office on 1/17/12. The correction was made to line number 17a.

Thank you,

**Patsy Gilbert**  
**Los Alamos National Laboratory, Contractor to the**  
**United States Department of Energy**  
**(office) 575-234-7517**  
**(cell) 575-302-7400**



**From:** Lyshik, Gwen - LANL **On Behalf Of** Site Documents - DOE  
**Sent:** Tuesday, January 17, 2012 1:09 PM  
**To:** 'john.kieling@state.nm.us'  
**Cc:** Hall, Timothy; Holmes, Steve; Kliphuis, Trais  
**Subject:** Review of SRS/CCP Waste Stream Profile Form Number SR-W026-221F-HET-A

**Please see the attached correspondence. Should you have any questions, please contact Mr. J.R. Stroble, Director of the Office of the National TRU Program, at (575) 234-7313.**

*Thank you!!!*

*Gwen Lyshik*  
*Los Alamos National Laboratory, Contractor to the*  
*United States Department of Energy*  
*575-234-7203*

Attachment 2 – CCP Waste Stream Profile Form

<b>(1) Waste Stream Profile Number:</b> SR-W026-221F-HET-A	
<b>(2) Generator site name:</b> Savannah River Site	<b>(3) Generator site EPA ID:</b> SC1890008989
<b>(4) Technical contact:</b> Beverly Schrock	<b>(5) Technical contact phone number:</b> 575-234-7444
<b>(6) Date of audit report approval by New Mexico Environment Department (NMED):</b> March 3, 2011	
<b>(7) Title, version number, and date of documents used for WIPP-WAP Certification:</b> 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 30, October 17, 2011; CCP-AK-SRS-3, Central Characterization Project Acceptable Knowledge Summary Report for Savannah River Site Waste Streams: SR-W026-221F-HET, SR-W026-221F-HOM, SR-W026-221F-HEPA and SR-W026-221F-HET-A, Revision 9, April 26, 2010	
<b>(8) Did your facility generate this waste?</b> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
<b>(9) If no, provide the name and EPA ID of the original generator:</b> NA	
<b>Waste Stream Information</b>	
<b>(10) WIPP ID:</b> SR-W026-221F-HET-A	<b>(11) Summary Category Group:</b> S5000 – Debris Waste
<b>(12) Waste Matrix Code Group:</b> Heterogeneous Debris Waste	<b>(13) Waste Stream Name:</b> Heterogeneous Debris from F-Canyon and FB-Line Facilities
<b>(14) Description from the ATWIR:</b> The waste consists primarily of Berl saddles, but also includes metal electrical equipment (e.g., scales, detectors, nickel-cadmium batteries), small amounts of plastic (e.g., bags, bottles, tape), and cellulosic absorbent pads.	
<b>(15) Defense TRU Waste:</b> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
<b>(16) Check One:</b> CH <input checked="" type="checkbox"/> RH <input type="checkbox"/>	
<b>(17) Number of SWBs:</b> NA	<b>(18) Number of Drums<sup>2</sup>:</b> 5 55-gallon drums
<b>(17a) Number of SLB2:</b> NA	<b>(19) Number of Canisters:</b> NA
<b>(20) Batch Data Report numbers supporting this waste stream characterization:</b> See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers	
<b>(21) List applicable EPA Hazardous Waste Numbers:<sup>1</sup></b> D006, D007, D008, D009, D011, D019, D022, D028, D029, F002 and F005	
<b>(22) Applicable TRUCON Content Numbers:</b> SR 125/225, SQ 154	
<b>(23) Acceptable Knowledge Information/Required Program Information</b>	
<b>(For the following, enter the supporting documentation used [i.e., references and dates])</b>	
<b>(23A) Map of site:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Attachments 1, 2 and 3	
<b>(23B) Facility mission description:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.1.4	
<b>(23C) Description of operations that generate waste:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.3 and 8.3	
<b>(23D) Waste identification/categorization schemes:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.4	
<b>(23E) Types and quantities of waste generated:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.2.1	
<b>(23F) Correlation of waste streams generated from the same building and process, as applicable:</b> CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 4.2.2	

**CCP-TP-002, Rev. 24**  
**CCP Reconciliation of DQOs and**  
**Reporting Characterization Data**

**Effective Date: 12/28/2011**

(24) Waste certification procedures: CCP-TP-030, Revision 29, April 26, 2011	
(25) Required Waste Stream Information	
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 8.1	
(25B) Waste stream volume and time period of generation: CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 8.2	
(25C) Waste generating process description for each building: CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 8.3	
(25D) Waste Process flow diagrams: CCP-AK-SRS-3, Revision 9, April 26, 2010, Figures 4-1, 4-2, 4-3 and 4-4	
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-SRS-3, Revision 9, April 26, 2010, Section 8.4	
(25F) Waste Material Parameter Weight Estimates per unit of waste: See table entitled "Waste Stream SR-W026-221F-HET-A Waste Material Parameters" in Summation of Aspects of AK Summary report: SR-W026-221F-HET-A	
(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 P1, P2, P3, P4, P5, P6, P7, P9, P10, P11, P12, P13, P14, P15, P16, P17, P19, P20, P21, P22, P23, P25, P32, P34, P38, P39, P41, P43, P44, P45, P46 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27C) Safety Analysis Reports: See D2, D34 and D35 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27D) Waste packaging logs: See M6 and M7 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27E) Test plans/research project reports: NA	
(27F) Site databases: See M1 and M22 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27G) Information from site personnel: See C2, C5, C6, C7, C9, C13, C16, C19, C20, C26, C27 and C29 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27H) Standard industry documents: See P27 and P28 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27I) Previous analytical data: See D8, M24, M46 and M64 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27J) Material safety data sheets: See M11, M40 and M45 in Summation of Aspects of AK Summary Report: Waste Stream SR-W026-221F-HET-A, AK Source Documents Used	
(27K) Sampling and analysis data from comparable/surrogate Waste: NA	
(27L) Laboratory notebooks: NA	
Confirmation Information2	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
(28)	Radiography: CCP-TP-053, Revision 11, July 20, 2011
	Visual Examination: NA

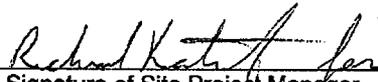
(29) Comments: For a list of the waste characterization procedures used and date of respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert: YES  Date: 10/31/2011

Reviewed by STR (if necessary): YES  N/A  Date: 11/1/2011

**Waste Stream Profile Form Certification:**

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

  
Signature of Site Project Manager

Beverly Schrock  
Printed Name

1/5/12  
Date

- NOTE:** (1) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.  
(2) There are only 5 55-gallon drums in this waste stream; all 5 drums were headspace gas sampled

# CHARACTERIZATION INFORMATION SUMMARY

WSPF # SR-W026-221F-HET-A

Lot 1

## TABLE OF CONTENTS

Characterization Information Cover Page.....	002
Correlation of Container Identification Numbers to Batch Data Report Numbers.....	003
CCP Headspace Gas UCL <sub>90</sub> Evaluation Form.....	004
Headspace Gas Summary Data.....	006
RTR/VE Summary of Prohibited Items and AK Confirmation.....	007
Reconciliation with Data Quality Objectives.....	008

**CCP Characterization Information Summary Cover Page**

Waste Stream #	SR-W026-221F-HET-A	Lot #:	1
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Richard Kantowitz <i>RK</i>	Date:	11/8/2011

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. 11	07/20/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/10	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
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**Headspace Gas Sampling and Analysis (HSG):**

CCP-TP-093	Rev. 16	09/07/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 15	03/10/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 14	12/29/10	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 7	12/29/10	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-173	Rev. 1	09/30/09	CCP Analysis of Gas Samples for VOCs by GC/FID
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. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/10	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 28	05/12/10	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

**WAP Certification:**

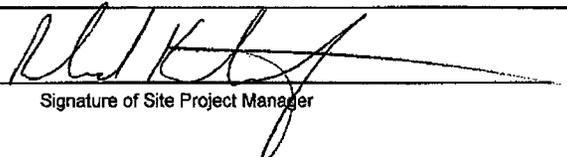
CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-004	Rev. 30	10/17/11	CCP/SRS Interface Document
CCP-PO-004	Rev. 29	07/05/11	CCP/SRS Interface Document

## CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # SR-W026-221F-HET-A

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	
FBL06026	SRLBC0232	SRSRTR0376	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G
FCAN04001	SRLBC0264	SR4RTR0128	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G
FCAN04002	SRLBC0264	SR4RTR0128	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G
FCAN04003	SRLBC0265	SR4RTR0128	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G
FCAN04004	SRLBC0299	SR4RTR0149	N/A	N/A	N/A		SRHSG1103	ECL11006M	ECL11006G

  
Signature of Site Project Manager

Richard Kantrowitz

Printed Name

11/8/2011

Date

015003

# CCP Headspace Gas UCL<sub>90</sub> Evaluation Form

WSPF #: SR-W026-221F-HET-A

Waste Stream Headspace Gas Lot 1 through 1  
Number

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL <sub>90</sub> (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL <sub>90</sub> > PRQL Yes	EPA Hazardous Waste Number
Benzene	No	1	5	0.47	0.12	0.20	0.25	10	N/A		
Bromoform	Log	0	5	-4.34	-4.76	0.23	-4.60	10	2.30		
Carbon Tetrachloride	No	0	5	0.02	0.01	0.00	0.02	10	N/A		
Chlorobenzene	No	0	5	0.03	0.02	0.01	0.02	10	N/A		
Chloroform	No	0	5	0.04	0.03	0.01	0.03	10	N/A		
Cyclohexane <sup>a</sup>	Log	0	5	-3.01	-3.41	0.22	-3.25	10	2.30		
1,1-Dichloroethane	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
1,2-Dichloroethane	Log	0	5	-3.06	-3.45	0.22	-3.30	10	2.30		
1,1-Dichloroethylene	Log	0	5	-3.69	-4.08	0.22	-3.93	10	2.30		
cis-1,2-Dichloroethylene <sup>a</sup>	Log	0	5	-3.00	-3.39	0.22	-3.24	10	2.30		
trans 1,2-Dichloroethylene	Log	0	5	-3.13	-3.53	0.22	-3.38	10	2.30		
Ethyl benzene	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
Ethyl Ether	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
Methylene chloride	No	0	5	0.05	0.03	0.01	0.04	10	N/A		
1,1,2,2-Tetrachloroethane	No	0	5	0.02	0.01	0.00	0.02	10	N/A		
Tetrachloroethylene	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
Toluene	No	5	5	14.00	6.63	5.62	10.48	10	N/A	Yes	F005
1,1,1-Trichloroethane	Log	0	5	-3.86	-4.26	0.22	-4.11	10	2.30		
Trichloroethylene	Log	0	5	-3.69	-4.08	0.22	-3.93	10	2.30		
Trichlorofluoromethane <sup>a</sup>	No	0	5	0.04	0.03	0.01	0.04	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	5	0.02	0.02	0.00	0.02	10	N/A		
1,2,4-Trimethylbenzene <sup>a</sup>	No	0	5	0.03	0.02	0.01	0.03	10	N/A		
1,3,5-Trimethylbenzene <sup>a</sup>	No	0	5	0.03	0.02	0.00	0.02	10	N/A		
m,p-Xylenes <sup>b</sup>	Log	0	5	-3.19	-3.59	0.22	-3.44	10	2.30		
o-Xylene	Log	0	5	-3.10	-3.50	0.22	-3.34	100	4.61		
Acetone	Log	5	5	1.39	0.52	0.61	0.94	100	4.61		
Butanol	No	1	5	0.38	0.11	0.15	0.21	100	N/A		
Methanol	No	0	5	14.50	14.30	0.27	14.49	100	N/A		
Methyl ethyl ketone	No	1	5	0.40	0.10	0.17	0.21	100	N/A		

GIS004

## CCP Headspace Gas UCL<sub>90</sub> Evaluation Form

WSPF #: SR-W026-221F-HET-A

Waste Stream Headspace Gas Lot 1 through 1  
Number

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL <sub>90</sub> (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL <sub>90</sub> > PRQL Yes	EPA Hazardous Waste Number
Methyl isobutyl ketone	No	0	5	0.03	0.02	0.01	0.02	10	N/A		
Chloromethane <sup>a</sup>	No	1	5	0.29	0.08	0.12	0.16	10	N/A		
Carbon Disulfide <sup>a</sup>	Log	1	5	-2.54	-3.39	0.52	-3.03	10	2.30		
1,2-Dichloropropane <sup>a</sup>	No	0	5	0.03	0.02	0.01	0.02	10	N/A		
Formaldehyde <sup>c</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine <sup>d</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

<sup>a</sup> 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.

<sup>b</sup> 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."

<sup>c</sup> Required only for homogenous solids and soil/gravel waste from Savannah River Site.

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

<sup>e</sup> These compounds are reported by the Laboratory and are included for completeness.

**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.)

  
\_\_\_\_\_  
Signature of Site Project Manager

Richard Kantrowitz

Printed Name

11/8/2011

Date

CIS005

# CCP Headspace Gas Summary Data

Waste Stream Number

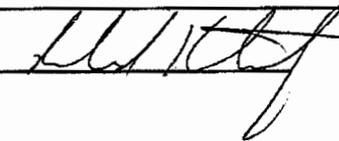
SR-W026-221F-HET-A

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 <input checked="" type="checkbox"/> No <input type="checkbox"/>			
If no, describe the basis for assigning the EPA Hazardous Waste Codes:			

SPM Signature



Date

11/8/2011

## CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: SR-W026-221F-HET-A

Lot(s)#: 1

Container Number	RTR Prohibited Items <sup>a,b</sup>	Visual Examination Prohibited Items <sup>a,b</sup>
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-W026-221F-HET-A.



Site Project Manager Signature

Richard Kantrowitz

Printed Name

11/8/2011

Date

## CCP Reconciliation with Data Quality Objectives

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WS# SR-W026-221F-HET-A

Lot # 1

### Sampling Completeness

#### RTR/VE:

Number of Valid Samples: 5                      Number of Total Samples Analyzed: 5  
Percent Complete: 100 (QAO is 100%)

#### NDA

Number of Valid Samples: 5                      Number of Total Samples Analyzed: 5  
Percent Complete: 100 (QAO is 100%)

#### HSG

Number of Valid Samples: 5                      Number of Total Samples Collected: 5  
Percent Complete: 100 (QAO is  $\geq 90\%$ )  
Number of Valid Samples: 5                      Number of Total Samples Analyzed: 5  
Percent Complete: 100 (QAO is  $\geq 90\%$ )

#### Total VOC

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

#### Total SVOC

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

#### Total Metals

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

## CCP Reconciliation with Data Quality Objectives

WS# SR-W026-221F-HET-A

Lot # 1

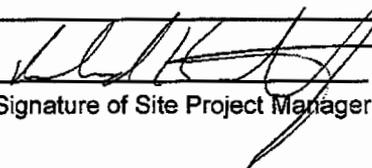
	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability 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 <sub>90</sub> 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 <sub>90</sub> 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 <sub>90</sub> ) 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 <sub>90</sub> ) 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-W026-221F-HET-A

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 stream or waste stream lot.		
		<b>Completeness</b>	<b>Comparability</b>	<b>Representativeness</b>
	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

11/8/2011  
 Date

**SUMMATION OF ASPECTS OF AK SUMMARY REPORT: SR-W026-221F-HET-A****Overview:**

The SR-W026-221F-HET-A waste stream consists of 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. The Building 221-F (F-Canyon and FB-Line) had two functions: 1) to convert dilute plutonium solution into highly purified plutonium metal; and 2) to recover weapons-grade plutonium from scrap materials produced during FB-Line operation and from scrap material shipped to the SRS from other off-site facilities. In 1999, the mission was expanded to include material characterization which included characterization and repackaging of scrap containing plutonium and uranium oxides from FB-Line, the F-Area Material Storage facility, and off-site facilities. Suspension of the plutonium production mission was completed in March 2002, and deactivation of limited areas of the FB-Line began. Deactivation of FB-Line operations was completed in July 2006 and is pending decommissioning. 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 TRU mixed debris waste generated in Building 221-F (F-Canyon and FB-Line). Building 221-F was a Department of Energy (DOE) defense nuclear materials production facility where fission products were separated from plutonium solutions in F-Canyon and then the dilute plutonium solutions were concentrated and purified into weapons-grade plutonium metal in FB-Line for weapons use throughout the time period of waste generation.

This summation of the Acceptable Knowledge (AK) Summary Report includes information to support Waste Stream Profile Form (WSPF) number SR-W026-221F-HET-A for mixed heterogeneous debris waste from SRS. The primary source of information for this Summation is CCP-AK-SRS-3, Central Characterization Project Acceptable Knowledge Summary Report For Savannah River Site, Waste Streams: SR-W026-221F-HET, SR-W026-221F-HOM, SR-W026-221F-HEPA, SR-W026-221F-HET-A, Revision 9, April 26, 2010.

**Waste Stream Identification Summary:**

Waste Stream Name:	Heterogeneous Debris from F-Canyon and FB-Line Facilities
Waste Stream Number:	SR-W026-221F-HET-A
Dates of Waste Generation:	June 2004 to November 2005
Waste Stream Volume – Current:	5 55-gallon drums
Waste Stream Volume – Projected:	None
Summary Category Group:	S5000 – Debris Wastes

Waste Stream Profile Form: SR-W026-221F-HET-A

Waste Matrix Code Group: Heterogeneous Debris Waste

Waste Matrix Code: S5400

TRUCON Content Numbers: SR 125/225, SQ 154

Annual Transuranic Waste Inventory Report  
(ATWIR) Identification Number: SR-W026-221F-HET-A

**Waste Stream Description and Physical Form:**

Waste stream SR-W026-221F-HET-A consists of small pieces of equipment were removed from the FB-Line Mechanical Line, and Berl (ceramic) saddles were removed from the F-Canyon dissolver off-gas system. The waste consists primarily of Berl saddles, but also includes metal electrical equipment (e.g., scales, detectors, nickel-cadmium batteries), small amounts of plastic (e.g., bags, bottles, tape), and cellulosic absorbent pads. A single Berl saddle is 0.5-inches wide and about 0.7-inches in length and is composed primarily of silicon dioxide and aluminum oxide.

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 is a small population of containers generated during Building 221-F (F-Canyon and FB-Line) plutonium production and associated suspension and deactivation operations.

**Point of Generation:**

**Location**

Waste stream SR-W026-221F-HET-A was generated at SRS in Aiken, South Carolina. The waste is currently stored at the SRS RWBG and SWMF.

**Area and/or Buildings of Generation**

Waste stream SR-W026-221F-HET-A was generated Building 221-F (F-Canyon and FB-Line) which is located in the 200-F Separations Area.

**Generating Processes:**

**Description of Waste Generating Processes**

This waste stream was generated during plutonium production and associated suspension and deactivation operations in Building 221-F (F-Canyon and FB-Line). Specifically, the F-Canyon waste was generated from the process off-gas system, and the FB-Line waste was generated from the Mechanical Line.

### Process Off-Gas System

Irradiated targets, which consisted of a cylinder of depleted uranium clad in aluminum, were brought into F-Canyon and loaded into a large tank called a dissolver. Sodium hydroxide was used to remove the aluminum cladding from the targets. The cladding solution was transferred to the High-Level Waste tanks. Volatiles generated during the dissolution were ducted to the dissolver off-gas system. This system included two iodine reactors designed to remove radioactive iodine (I-129) from the off-gas. The off-gas entered the reactor cartridge where radioactive iodine was removed by contacting a bed of silver nitrate-impregnated reaction media. The media consisted of ceramic saddle-shaped pieces called Berl saddles. Silver iodide and silver iodate were formed in the reaction.

### Mechanical Line

The Mechanical Line was a series of cabinets/gloveboxes involved in the plutonium recovery process. Primary operations performed in the Mechanical Line include reduction and finishing, drying and conversion, and plutonium metal finishing. A roasted mixture of plutonium tetrafluoride and plutonium oxide was dumped from the roasting pan into a mixing container. The material was weighed, calcium metal was added, and materials were mixed in a mixer-dumper. The mixture was then dumped into a pressure chamber containing a magnesium oxide crucible nested in magnesium oxide sand. The crucible was covered with a stainless-steel lid and the reduction vessel was sealed and placed in one of two reduction furnaces. After reduction and cooling, the impure metal was dumped from the reduction vessel, marked for identification, pickled with nitric acid, drilled to obtain an analytical sample, weighed, and packaged for storage in the vaults.

### Suspension and Deactivation

SRS was directed by the U.S. Department of Energy to suspend operations in F-Canyon and FB-Line and deactivate these facilities. Suspension occurred in four distinct phases: 1) product stabilization, 2) de-inventory, 3) facility stabilization and equipment shutdown/isolation, and 4) surveillance & maintenance (S&M) and material management. Phase 1 involved the production of the last plutonium button from F-Canyon solution and disposition of the sand, slag, and crucible produced from remaining FB-Line button production. In Phase 2, plutonium bearing vessels were emptied and the solution discarded to the canyon. Equipment was flushed and/or shutdown in Phase 3. Chemicals used for flushing included process water, sodium hydroxide, nitric acid, and aluminum nitrate nano-hydrate. Phase 4 S&M involved continued operation of certain FB-Line equipment necessary to maintain a safe and environmentally sound configuration.

Deactivation is the process of placing a facility in a safe, stable, and known condition by elimination or reduction of residual hazards. Transferable contamination was controlled by confinement, isolation, removal, or fixing techniques. Wastes were also generated from the removal of piping and equipment, although much of the equipment was left in place, including

process filters in cabinets. Unattached combustible materials were usually removed, but in certain instances, cabinet gloves and other combustibles, and small amounts of liquid and material hold-up, were left in place.

### Waste Stream Material and Chemical Inputs

The following table identifies the RCRA toxicity characteristic and listed constituents identified in this waste stream.

### Toxicity Characteristic and Listed Constituents in Waste Stream SR-W026-221F-HET-A

Chemical	EPA HWN
Cadmium	D006
Chromium	D007
Lead	D008
Mercury	D009
Silver	D011
Carbon Tetrachloride	D019
Chloroform	D022
1,2-Dichloroethane	D028
1,1-Dichloroethylene	D029
1,1,1-Trichloroethane	F002
Chlorobenzene	F002
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	F002
Methylene chloride	F002
Tetrachloroethylene	F002
Trichloroethylene	F002
Benzene	F005
Carbon disulfide	F005
Isobutanol	F005
Toluene	F005

### RCRA Determinations

### Historical Waste Management

Waste stream SR-W026-221F-HET-A has been historically 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, a site specific waste stream was not created for this debris waste stream. Instead, containers were managed individually as hazardous waste. The original SRS Environmental Protection Agency (EPA) hazardous waste number (HWN) assignments have been retained (i.e., D006, D008, D011). However, a review of available AK documentation has determined that additional HWNs apply to this waste stream because it includes waste from the Mechanical Line. Therefore, the HWNs summarized below will be assigned to the containers in this waste stream (Reference DR010).

## Hazardous Waste Determinations

### Ignitability, Corrosivity, Reactivity

This waste does not exhibit the characteristic of ignitability as defined in Title 40 Code of Federal Regulations (CFR) 261.21. Ignitable liquids (e.g., acetone, n-butyl alcohol, toluene) and oxidizers (e.g., aluminum nitrate, silver nitrate) were used in F-Canyon and FB-Line operations. However, 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. The materials are not liquid; materials were allowed to dry or absorbed prior to disposal. Therefore, this waste does not exhibit the characteristic of ignitability (D001) (References C61, D4, D5, M63, M64, P1, P2, P3, P5, P6, P16, P30, P31, P32, and P33).

This waste does not exhibit the characteristic of corrosivity as defined in 40 CFR 261.22. Corrosive liquids were used; for example, nitric acid was used to leach silver and other solubles from the Berl saddles. However, the nitric acid solution was collected and removed from the Berl saddle waste. The materials are not liquid; materials were allowed to dry or absorbed using cellulosic absorbent pads prior to disposal. Therefore, this waste does not exhibit the characteristic of corrosivity (D002) (References C61, D4, D5, M63, M64, P1, P2, P3, P5, P6, P16, P30, P31, P32, and P33).

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 are not a cyanide or sulfide bearing waste. The materials are not capable of detonation or explosive reaction. Therefore, this waste stream does not exhibit the characteristic of reactivity (D003) (References C61, D4, D5, M63, M64, P1, P2, P3, P5, P6, P16, P30, P31, P32, and P33).

The containers in the waste stream will be evaluated in accordance with the WIPP-WAP using radiography prior to shipment to ensure the waste is not ignitable, reactive, or corrosive.

### 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 as a component of dry cell nickel-cadmium batteries. Chromium (D007) was identified as an ingredient of a corrosion inhibitor and may be present as a corrosion product of stainless steel. Lead (D008) was identified as a component of solder from electrical equipment (e.g., scales, detectors). Mercury (D009) was identified as an ingredient in process chemicals, component of

equipment (e.g., thermometers, manometers, and gauges), and contaminant of Berl saddles. Silver (D011) was identified as an ingredient in process chemicals and contaminant of Berl saddles. Therefore, EPA HWNs D006, D007, D008, D009, and D011 are assigned to the waste stream (References D2, D10, DR010, M63, M64, P2, and P3).

Based on the evaluation of the AK source documentation, this waste stream may contain or be contaminated with toxicity characteristic organic compounds. Since both waste streams SR-W026-221F-HET and SR-W026-221F-HET-A include waste generated in the Mechanical Line, toxicity characteristic organics identified by headspace gas in SR-W026-221F-HET could also be present in SR-W026-221F-HET-A. The toxicity characteristic organics detected in waste stream SR-W026-221F-HET headspace gas samples included carbon tetrachloride (D019), chloroform (D022), 1,2-dichloroethane (D028), and 1,1-dichloroethylene (D029). Other constituents were also detected (i.e., benzene [D018], chlorobenzene [D021], tetrachloroethylene [D039], trichloroethylene [D040]); however, the more specific F-listed EPA HWNs have been assigned for these compounds (see F-Listed Waste discussion). Therefore, EPA HWNs D019, D022, D028, and D029 are assigned to the waste stream (References DR010, M24, and M64).

#### **Listed Waste**

#### **F-Listed Waste**

This waste stream may contain or be mixed with F-listed hazardous wastes from non-specific sources as listed in 40 CFR 261.31. F001, F002, F003, and F005 listed solvents could potentially contaminate the waste; however, specific solvent uses were not identified. Since both waste streams SR-W026-221F-HET and SR-W026-221F-HET-A include waste generated in the Mechanical Line, F-listed constituents identified by headspace gas in SR-W026-221F-HET could also be present in SR-W026-221F-HET-A. The F-listed HWNs assigned to waste stream SR-W026-221F-HET-A are the same as those assigned to SR-W026-221F-HET with the exception of F001 and F003 as explained below (References DR010, M24, and M64).

The F001-listed solvents carbon tetrachloride, methylene chloride, tetrachloroethylene, and trichloroethylene may be present in this waste, and F001 is assigned to waste stream SR-W026-221F-HET. However, EPA has provided a regulatory clarification that the F001-listing is only appropriate when listed solvents are used in a large-scale degreasing operation, such as cold cleaning or vapor degreasing on an industrial scale. This waste was not generated from large-scale degreasing operations, and therefore, EPA HWN F001 is not assigned to the waste stream (References DR010 and M24).

The F003-listed solvents acetone, cyclohexanone, ethyl acetate, ethyl benzene, ethyl ether, methanol, methyl isobutyl ketone, n-butyl alcohol, and xylene may be present in this waste, and F003 is assigned to waste stream SR-W026-221F-HET. However, F003-listed solvents are listed solely for ignitability and waste stream SR-W026-221F-HET-A does not exhibit ignitability because the solvents are not in liquid form. Therefore, EPA HWN F003 is not assigned to the waste stream (References DR010 and M24).

Therefore, F-listed EPA HWNs F002 (1,1,1-trichloroethane, chlorobenzene, Freon 113 [1,1,2-trichloro-1,2,2-trifluoroethane], methylene chloride, tetrachloroethylene, and trichloroethylene) and F005 (benzene, carbon disulfide, isobutanol, and toluene) are assigned to the waste stream (References DR010 and M24).

#### **K-Listed Waste**

This waste stream does not include any of the manufacturing process wastes from the specific industries or sources listed in 40 CFR 261.32.

#### **P- and U-listed Wastes**

This waste stream was not 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. No P- or U-listed wastes were identified on the container paperwork (e.g., 29-90 forms). Also, chemicals are present only as spent and contamination waste material, rather than as pure commercial chemical product. There is also no indication that the U-listed waste found in other FB-Line waste is present in this waste stream (e.g., acetone, mercury). Process chemicals were used for their intended purposes and were not disposed of as pure or unused chemical product (References D3, D12, D19, M64, and P11).

Materials that contained weapons-grade plutonium and beryllium were processed in the FB-Line facility. Typical job control waste contaminated with beryllium was generated. Beryllium was listed as present on the 29-90 form for one drum in this waste stream. However, the beryllium was not in the form of unused beryllium powder and, therefore, is not a P015-listed waste (References D3, D12, D19, M64, and P11).

Hydrofluoric acid was used in FB-Line operations. However, hydrofluoric acid was used for its intended purposes and was not disposed of as pure or unused chemical product. Therefore, EPA HWN U134 is not assigned to the waste stream (References D3, D12, D19, M64, and P11).

Therefore, this waste stream is not assigned P- or U-Listed EPA HWNs.

#### **Polychlorinated Biphenyls (PCBs)**

PCBs are not expected to be present in this waste. Based on the materials in this waste stream and the extensive efforts to remove electrical equipment containing PCBs in the mid-1980s, PCB items are not expected to be present. Therefore, this waste stream is not regulated as a Toxic Substance Control Act waste under 40 CFR 761 (References C3 and C4).

#### **Prohibited Items**

Real-time radiography (RTR) has determined that no prohibited items are present in this waste stream.

**Method for Determining Waste Material Parameters (WMPs) Weights per Unit of Waste**

WMP weights are estimated by the generator and recorded on the 29-90 form. The specific type of metal the equipment (scales and detectors) is comprised of was not provided, but the generator listed it on the 29-90 form as "Other Metals/Alloys". A statistical analysis of the 29-90 data was performed, the results of which are presented in the below table.

**Waste Stream SR-W026-221F-HET-A Waste Material Parameters**

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	0.0%	0.0 - 0.0%
Aluminum-based Metals/Alloys	0.0%	0.0 - 0.0%
Other Metals	5.2%	0.0 - 85.4%
Other Inorganic Materials	89.3%	0.0 - 95.2%
Cellulosics	0.1%	0.0 - 2.1%
Rubber	0.0%	0.0 - 0.0%
Plastics (waste materials)	5.4%	4.8 - 12.5%
Organic Matrix	0.0%	0.0 - 0.0%
Inorganic Matrix	0.0%	0.0 - 0.0%
Soils/gravel	0.0%	0.0 - 0.0%

**List of AK Sufficiency Determinations Requested for the Waste Stream**

There are no AK sufficiency determination requests 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 payload container.

**Radionuclide Information**

To determine the radionuclide distribution in this waste stream, data from 29-90 forms were evaluated. The evaluation indicates that Pu-239 and I-129 are the two most prevalent radionuclides, by mass. Nondestructive assay cannot measure I-129; however, this is of no consequence because the WIPP Waste Acceptance Criteria does not specifically require reporting of I-129, and it has an unlimited A2 value (reference 49 CFR 173.435) which means it does not contribute to 95% of the radiological hazard for transportation. With I-129 excluded from the calculation, the two most prevalent radionuclides, by mass, in this waste stream are Pu-239 and Pu-240, respectively.

## Radiological Distribution for Waste Stream SR-W026-221F-HET-A

Radionuclide	Total Radionuclide Wt% <sup>1</sup>	Radionuclide Wt% Range for Individual Drums <sup>2,4</sup>	Suspected Present (Yes/No)
Am-241	0.62%	0.41 – 0.64%	Yes
Pu-238	0.01%	Trace – 0.04%	Yes
Pu-239	89.12%	54.70 – 93.11%	Yes
Pu-240	5.71%	5.69 – 5.80%	Yes
Pu-242	0.04%	0.03 – 0.15%	Yes
U-233	Trace <sup>3</sup>	0 – Trace	Yes
U-234	0.01%	0 – 0.12%	Yes
U-238	2.84%	0 – 27.28%	Yes
Sr-90	Trace	0 – Trace	Yes
Cs-137	0.03%	0 – 0.04%	Yes
<b>Additional Radionuclides</b>			
Ba-137m	Trace	0 – Trace	Yes
Cm-244	Trace	0 – Trace	Yes
Co-60	Trace	0 – Trace	Yes
Eu-154	Trace	0 – Trace	Yes
Eu-155	Trace	0 – Trace	Yes
H-3	Trace	0 – Trace	Yes
Ni-59	Trace	0 – Trace	Yes
Ni-63	Trace	0 – Trace	Yes
Np-237	0.01%	0 – 0.09%	Yes
Pu-241	0.45%	0.22 – 0.48%	Yes
Tc-99	Trace	0 – Trace	Yes
Th-232	Trace	0 – Trace	Yes
U-235	1.16%	0 – 11.14%	Yes
U-236	Trace	0 – 0.05%	Yes
Y-90	Trace	0 – Trace	Yes

<sup>1</sup> This indicates the total weight percent of each radionuclide over the waste stream.

<sup>2</sup> This is the range of each radionuclide on a drum-by-drum basis.

<sup>3</sup> "Trace" indicates <0.01 wt% for that radionuclide.

<sup>4</sup> A zero value for a lower range indicates that some drums did not contain the radionuclide of interest.

Payload management will not be utilized for this waste stream.

## Source Documents

Source Document Tracking Number	Title
C1	Miscellaneous Correspondence on Solvent Contaminated Waste
C2	PCB Committee: Meeting No. 1
C3	Polychlorinated Biphenyls (PCBs) Used In Electrical Equipment
C4	PCB Inventory Changes During Calendar Year 1984
C5	Interview of R.E. Lynn, J.B. Schaade: Radiological Characterization of Post-90 FB-Line Waste
C6	Interview of M. B. Reuis: FB-Line Practice Relating to Number of Layers of Confinement
C7	Interview of M. B. Reuis: Absorption and Neutralization of Free Liquids
C8	Electronic Mail Message to P. Fulghum: "Squib" Igniters Used In "Halex" Fire Suppression
C9	Interview of E.R. Hackney: Decontamination Agents Used in the FB-Line
C11	Memo to J.S. Bellamy: Impact of Proposed Change in Plutonium Isotopics on FB-Line Low-Level Waste Radioisotopic Characterization
C12	Memo: Specifications for Plutonium Shipped to the Rocky Flats Plant
C13	Telecon Record: Call to P.J. Spitzer - Starting Date for Operations Inside Refurbished Special Recovery Cabinets 6-8
C15	Memo to H.W. Fincher, J.W. McClard: FB-Line TRU Waste Characterization Data
C16	Interview of FB-Line Personnel: FB-Line Operations from Approximately 1986 to 1990
C17	Letter: Waste Matrix Code Assignment for Transuranic Waste Stream SR-T001-221F-HET/Drums
C19	Interview of J.W. McClard: (trans)-1,2-Dichloroethylene and Formaldehyde use in the FB-Line
C20	Interview of D. Gracy: Material Characterization Cabinets in FB-Line
C21	R.S. Thomason to C.J. Ward; Mass and Activity Values for FB-Line and HB-Line TRU Waste(U)
C22	A. Gibbs to S.J. Mentrup; Plutonium Isotopic Content of Waste Streams
C23	Inter-Memorandum: Corrected Values for FB-Line TRU Waste Drums Sent to the Solid Waste Disposal Facility From 1985 to 1992 (U)
C25	Memorandum to K.D. Stegg re: FB-Line Mixed Waste Certification Assessment Status (U)
C26	Record of Communication - Interview with Steve Bellamy, Nuclear Materials Production Division re: Mixed waste at FB-Line, 1990 to present
C27	Telephone conversation with Carol Allgood, NMMD re: Blue Dot program at FB-Line and HB-Line
C28	Memorandum re: Information on TRU Waste Characterization in Support of the WIPP No-Migration Variance Petition
C29	Record of Communication with G.F. Lunsford re: Isotopics for Requested Off-Site Account

## Waste Stream Profile Form: SR-W026-221F-HET-A

Source Document Tracking Number	Title
C58	Memo to CCP Central Records: Beryllium Evaluation for AK Summary Report CCP-AK-SRS-3
C59	Email correspondence regarding the addition of drums to the SRS-3 HET waste stream
C60	Interview with Dennis Gracy, Systems Engineer for Material Characterization Cabinet: Deactivation Activities
C61	Memo to K.J. Collins, Hazardous Determination for FB-Line Materials
C62	Defense Nuclear Safety Board Memo for J. Kent Fortenberry
C63	E-mail Correspondence from Linda Ledbetter re: SEVEMR0072
C64	E-mail Correspondence from Jennifer Biedscheid re: TRAMPAC Question
C65	Letter to AK Record from James Schoen re: Evaluation of Volume, Period Generation, and Calculation of Individual and Total Radionuclide Masses and Activities for Waste Stream SR-W026-221F-HET
C66	Letter to AK Record from James M. Schoen re: Evaluation of Volume, Period Generation, and Calculation of Individual and Total Radionuclide Masses and Activities for Waste Stream SR-W026-221F-HOM
C67	Memo from R. C. Hochel re: TRU Boxed Waste Measurement Task Team Meeting Minutes 6/23/89
C69	Memorandum from James Schoen to CCP Records re: Reconciliation of Waste Containers List for Waste Streams SR-W026-221F-HEPA, SR-W026-221F-HET, SR-W026-221F-HET-A, and SR-W026-221F-HOM
C70	Future TRU Waste Generation for CCP-AK-SRS-3 TRU / MTRU Waste Streams
D1	Savannah River Site Atlas
D2	Safety Analysis--200 Area Savannah River Plant FB-Line Operations
D3	FB-Line Basis for Interim Operation (U)
D4	Savannah River Site Waste Acceptance Criteria Manual-1S, E-Area TRU Pads-Transuranic Waste Acceptance Criteria
D5	SRS Data Preparation for the 1995 WIPP TRU Waste Baseline Inventory Report, Mixed Waste Inventory Report, and Integrated Database (U)
D6	Radioisotope Characterization of FB-Line Low-Level Waste
D7	Memo to L. Rykken: FB-Line Low-Level Waste Smear Analysis Results Evaluation
D8	FB-Line Facility Radioisotopic Sampling Plan
D9	Technical Basis for the Container Examination and Evaluation Program (U)
D10	Separations FB-Line Facility Transuranic (TRU) Waste Certification Program
D11	Transmittal of SRS Audit Report of September 1989 to M.G. O'Rear
D12	The FB-Line Facility: A Training Aid Document
D13	Transmittal Memo to M.G. O'Rear: Waste Acceptance Criteria Certification Committee Audit of Savannah River Certification Activities
D15	Nuclear Criticality Safety Supplement Building 221-F, FB-Line: Material Characterization in Cabinets 6-8

## Waste Stream Profile Form: SR-W026-221F-HET-A

Source Document Tracking Number	Title
D16	Savannah River Certification Plan for Newly Generated, Contact-Handled Transuranic Waste
D19	FB-Line TRU Waste Characterization Plan
D21	Material Control and Accountability Measurements for FB-Line Processes
D22	FB-Line NDA Lab Operator Aid for Analytical Laboratory Technicians - Isotopic Distribution
D24	Westinghouse Savannah River Company Annual Report 2003
D25	Westinghouse Savannah River Company Annual Report 2004
D26	Washington Savannah River Company Annual Report 2005
D27	F-Canyon Suspension and Deactivation Safety Analysis Report
D28	Material Control & Accountability Activities Associated with the FB-Line Deactivation and Downgrade to an Inactive Category IV Material Balance Area.
D29	Stabilizing And Packaging Pu Materials per 3013 At SRS
D30	SRS Waste Acceptance Criteria Manual, Manual number 1S, Transuranic Waste Container Characterization Form OSR 29-30 Instructions Appendix A 23
D31	F-Canyon/FB-Line Facilities PUREX Operations Suspension Plan
D32	F-Canyon Complex Deactivation Project Plan, Building 221-F F-Canyon/FB-Line Facilities
D33	F-Canyon Complex, Post Deactivation Surveillance and Maintenance Plan & Implementation Manual
D34	Safety Analysis Report, Savannah River Site, FB-Line
D35	Safety Analysis Report, Savannah River Site, F-Canyon, FA-Line and Outside Facilities
DR001	Acceptable Knowledge Source Document Discrepancy Resolution, Waste Stream SR-W026-221F-HOM Physical Waste Form
DR002	Acceptable Knowledge Source Document Discrepancy Resolution, Waste Stream SR-W026-221F-HOM EPA Hazardous Waste Numbers
DR003	Acceptable Knowledge Source Document Discrepancy Resolution, Wooden-Framed HEPA Filters
DR008	Acceptable Knowledge Source Document Discrepancy Resolution, Calcium Reactivity
DR010	Acceptable Knowledge Source Document Discrepancy Resolution, Waste Stream SR-W026-221F-HET-A EPA Hazardous Waste Numbers
DR011	Acceptable Knowledge Source Document Discrepancy Resolution, Waste Stream SR-W026-221F-HOM Physical Waste Form
DR012	Acceptable Knowledge Source Document Discrepancy Resolution, SR171857, SR503013, SR503013A
DR013	Acceptable Knowledge Source Document Discrepancy Resolution, Cresol and Phenol in Solid Sampling and Analysis of Waste Stream SR-W026-221F-HOM
M1	AK Tracking Spreadsheet
M2	Specification for Procurement of TRU Waste Storage Drums
M3	Procurement Specification for 90 Mil Polyethylene Drum Liner/Lid

Waste Stream Profile Form: SR-W026-221F-HET-A

Source Document Tracking Number	Title
M4	Procurement Specification for 55 Gallon Painted Steel Drum
M5	Procurement Specification for 3/4 Inch Diameter Drum Filter Vents (U)
M6	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms)
M7	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms)
M8	Unreviewed Safety Question Process USQ Screening - Part A: Rev. 17 of SOP 221-FB-2504-NS
M9	USQD Summary Sheet for Referencing Previous USQD: Rev.1 to SOP 221-FB-2505-A-NS; "Packaging TRU Material Characterization Waste into a TRU Drumliner (U)."
M10	Unreviewed Safety Question Process: Revise Procedures for Transporting and Assaying Red Pail Waste
M11	Material Safety Data Sheets
M12	FACTSHEET: Lighting Waste Management
M13	Unreviewed Safety Question Process Form - Approval of IPC #98-0301-FBL to SOP 221-FB-2502-A-NS, Packaging General and Cabinet Waste Into a Red Pail (U)
M14	Unreviewed Safety Question Process: Implementing Procedures for Packaging Material Characterization Waste Directly Into a Drum Liner
M15	Unreviewed Safety Question Process Form: Approval of IPCs to Support Q2 Operations (U)
M17	USQD Summary Sheet for Referencing Previous USQD
M19	USQD Summary Sheet for Referencing Previous USQD
M20	USQD Summary Sheet for Referencing Previous USQD
M21	USQD Summary Sheet for Referencing Previous USQD
M22	Uncontrolled SRS Database for Post-1990 FB-Line Waste
M24	Headspace Gas Data from the SRS Project
M26	Request/Approval for Deviation to SRS Waste Acceptance Criteria Manual
M27	Waste Characterization for FB Line Drums Contaminated with Beryllium
M28	Evaluation of Additional Containers for SRS-3 Waste Streams SR-W026-221F-HET and SR-W026-221F-HOM (FB-Line)
M29	Evaluation of 52 Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line)
M30	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for drum additions
M31	Acceptable Knowledge Payload Management Calculations for CCP-SRS AK Reports 1 through 7
M32	Acceptable Knowledge Beryllium Assessment for CCP-SRS AK Reports 1 through 7
M33	Evaluation of 79 Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line)

## Waste Stream Profile Form: SR-W026-221F-HET-A

Source Document Tracking Number	Title
M34	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for drums added 6/1/05
M35	Email from Jeff Lunsford dated 8/31/2005. SRS Inventory Update
M36	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for Drums Added May 15, 2006
M37	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line), May 15, 2006
M38	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line)
M39	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for Drums Added July 19, 2006
M40	Material Safety Data Sheets
M41	Characterization Data on various Drums from the FB-Line
M42	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET (FB-Line) dated August 18, 2008; Container Paperwork for additional drums (29-90s): FBL05127 and FBL06035; and RTR Quick Screens for both drums
M43	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for 8/18/07 Drum Additions to SR-W026-221F-HET.
M44	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for Waste Stream SR-W026-221F-HOM
M45	Material Safety Data Sheets Applicable to Waste Stream SR-W026-221F-HOM
M46	RTR Quick Screen Data Sheets for Waste Stream SR-W026-221F-HOM
M47	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HOM (FB-Line)
M48	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for FB Line Containers
M49	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M50	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA
M51	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M53	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M54	Evaluation of Additional Containers for SRS-3 Waste Stream Sr-W026-221F-HEPA (FB-Line)
M55	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)

## Waste Stream Profile Form: SR-W026-221F-HET-A

Source Document Tracking Number	Title
M57	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M58	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA (FB-Line)
M59	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HET and SR-W026-221F-HOM
M60	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA
M61	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA
M62	Evaluation of Additional Containers for SRS-3 Waste Stream SR-W026-221F-HEPA
M63	Request for Deviation to SRS Waste Acceptance Criteria Manual - Berl Saddles
M64	TRU Waste Container Paperwork (e.g., Radioactive Solid Waste Burial Ground Records, TRU Waste Container Characterization Forms) for F-Canyon Facility and FB-Line
M65	Physical Form and Radiological Evaluation Spreadsheets
M68	Add Container Memo for Containers SR514741, SR514741A, and SR123429B
P1	Packaging General and Cabinet Waste Into Red Pails (U)
P2	Drumming Red-Pail Waste for Shipment To Solid Waste Disposal Facility (U)
P3	Packaging TRU (Process Cabinet or Fissile TRU) Waste Into A TRU Drum Liner
P4	Packaging TRU (Excluding Process Cabinet Waste) Into a TRU Drum Liner
P5	Packaging TRU Hut Waste (Excluding Process Cabinet Waste) Into a TRU Drum Liner
P6	Packaging TRU Hut Waste (Excluding Process Cabinet Waste) and TRU Decontamination Waste Into A TRU Drum Liner
P7	Controlled Procurement and Handling of Chemical and Blue Dot (Hazardous) Products
P8	Item 7.02, Chemical Control Program in FB Line Facilities
P9	Removing Oil from Mechanical Line Hydraulic Sumps Removing Hydraulic Fluid From Mechanical Line Hydraulic Sumps (U)
P10	Cleaning Wet Cabinet Sumps and Neutralizing Sump Waste (U) Cleaning Wet Cabinet Sumps or Pipe Duct Sumps and Neutralizing Sump Waste (U)
P11	Cold Chemical Cleanup (U)
P12	Handling Mechanical Line Cabinet Sweepings Sweeping Mechanical - Line Cabinets (U) Sweeping or Vacuuming Mechanical Line Cabinets (U)
P13	Handling and Weighing of Calcium
P14	Constructing a Plastic Hut
P15	Introducing or Removing Material Through Bag Ports
P16	Packaging Material Characterization Cabinet Waste Into a Drumliner

Source Document Tracking Number	Title
P17	Packaging and Handling HEPA Filter Waste
P18	Plutonium Packaging, Storage and Transfer Record
P19	Decontamination and Decontamination Waste Handling Activities
P20	Separations FB-Line Facility Low Level/Mixed Waste Certification and Minimization Plan
P21	Measuring 55-Gallon Waste Drums on the Drum Counter (U)
P22	TRU Drum Assembly (U)
P23	Transporting, Assaying, and Storing Red-Pail Waste (U)
P25	TRU Waste Data Package Requirements
P26	NMPT Lesson Plan, FB-Line Low Level Waste Handling, RCRA Compliance, Waste Minimization and Hazardous Material Transportation
P27	High-Efficiency Particulate Air (HEPA) Filter, Fire-Resistant (250 degree min), Cylindrical Specification 3
P28	High-Efficiency Particulate Air (HEPA) Filter, Fire-Resistant Specification 2
P29	Facility Disposition Manual 1C, Facility Disposition Program Overview
P30	Packaging General and Cabinet Waste into a Red Pail
P31	Packaging TRU Material Characterization Waste from Red Pails into a TRU Drumliner
P32	Packaging TRU Material Characterization Waste From Red Pails Into A TRU Drumliner
P33	Packaging Special Cabinet Waste into a Red Pail
P34	Absorbing Containerized Liquids
P35	TRU Drum Remediation Process
P36	TVEF Operations
P37	MRS Operations
P38	TRU Drum Repackaging
P39	Shipment Preparation for TRU Containers to SWMF
P41	Black Box Repackaging
P43	Absorbing Containerized Liquids
P44	Transuranic (TRU) Waste Repackaging in H-Canyon
P45	SWMF Blackbox Repackaging
P46	F Canyon Container transfer
P47	TRUPACT-II Loading and Shipping Project Work Scoping Document