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

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OCT 2012
NMED Hazardous Waste Bureau

OCT 15 2012

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

Subject: Review of Savannah River Site - Central Characterization Project Waste Stream Profile Form Number SR-W027-235F-HET, Revision 1

Dear Mr. Kieling:

The Department of Energy, Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number SR-W027-235F-HET, Revision 1 – Heterogeneous Debris from Building 235-F for the Central Characterization Project at the Savannah River Site.

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

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

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

Sincerely,

Jose R. Franco, Manager
Carlsbad Field Office

Enclosure

cc: w/enclosure

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

*ED denotes electronic distribution

121028

CBFO:NTP:JRS:PG:12-0642:UFC 5900.00

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: SR-W027-235F-HET, Revision 1					
(2) Generator site name: Savannah River Site			(3) Generator site EPA ID: SC1890008989		
(4) Technical contact: Beverly Schrock			(5) Technical contact phone number: 575-234-7444		
(6) Date of audit report approval by New Mexico Environment Department (NMED): May 23, 2012					
(7) Title, version number, and date of documents used for WIPP-WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 20, June 16, 2011; CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 26, July 14, 2011; CCP-PO-004, CCP/SRS Interface Document, Revision 30, October 17, 2011					
(8) Did your facility generate this waste? YES	X	NO			
(9) If no, provide the name and EPA ID of the original generator: NA					
Waste Stream Information					
(10) WIPP ID: SR-W027-235F-HET[1]			(11) Summary Category Group: S5000		
(12) Waste Matrix Code Group: Heterogeneous Debris Waste			(13) Waste Stream Name: Heterogeneous Debris from Building 235-F		
(14) Description from the ATWIR: This waste stream is defense related contact handled mixed TRU waste. This waste stream is primarily solids consisting of booties, lab coats, floor sweeping, labware, rags, and other job control waste, small HEPAs, liquids, sludges and resins may also be found in this stream.					
(15) Defense TRU Waste: YES	X	NO			
(16) Check One: CH	X	RH			
(17) Number of SWBs:[2] 54 (17a) Number of SLB2s: 2	(18) Number of Drums:[3] 1,733 55-gallon drums 2 55-gallon drums/per year projected			(19) Number of Canisters: NA	
(20) Batch Data Report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers.					
(21) List applicable EPA Hazardous Waste Numbers:[4] D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D035, F002 and F003					
(22) Applicable TRUCON Content Numbers: SR 125/225, SQ 154, SR 425					
(23)**Acceptable Knowledge Information**					
(For the following, enter the supporting documentation used [i.e., references and dates])					
Required Program Information					
(23A) Map of site: CCP-AK-SRS-6, Revision 9, September 11, 2012, Figures 1 and 2					
(23B) Facility mission description: CCP-AK-SRS-6, Revision 9, September 11, 2012, Section 4.2					
(23C) Description of operations that generate waste: CCP-AK-SRS-6, Revision 9, September 11, 2012, Section 4.3					
(23D) Waste identification/categorization schemes: CCP-AK-SRS-6, Revision 9, September 11, 2012, Section 4.5					
(23E) Types and quantities of waste generated: CCP-AK-SRS-6, Revision 9, September 11, 2012, Section 4.4.1					
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-SRS-6, Revision 9, September 11, 2012, Section 4.4.2					

(24) Waste certification procedures: CCP-TP-030, Revision 30, May 21, 2012			
(25)Required Waste Stream Information			
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-SRS-6, Revision 9, September 11, 2012, Section 5.1			
(25B) Waste stream volume and time period of generation: CCP-AK-SRS-6, Revision 9, September 11, 2012, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-SRS-6, Revision 9, September 11, 2012, Section 5.3			
(25D) Waste Process flow diagrams: CCP-AK-SRS-6, Revision 9, September 11, 2012, Figures 4, 5, 6 and 7			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-SRS-6, Revision 9, September 11, 2012, Section 5.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See table entitled "Waste Stream SR-W027-235F-HET Waste Material Parameters" in Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET			
(26) Which Defense Activity generated the waste:			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology	X	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 D010, P001, P003, P004, P005, P007, P008, P009, P010, P011, P013, P014, P015, P016, P017, P019, P020, P022, P024, P026, P027, P030, P031, P032, P036, P037, P038, P039, P042, P044, P045, P046, P047, P048, P049, P050, P052, P053, P055, P057, P058, P061, P062, P064, P065, P066, P067, P068, P069, P070, P071, P072, P073, P074, P075, P076, P077, P078, P079, P080, P082, P084, P086, P089, P092, P095, P096, P097, P098, P099, P100, P101, 102, P103, P104, P105, P106, P107, P108, P111, P112, P113, P123, P124, P127, P130, P131, P133, P136, P137, P138, P139, P144, P145, P146, P147, P148, P149 P150 and P152 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET, Source Documents.			
(27C) Safety Analysis Reports: See D002, D005, D006, D007 and D011 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET, Source Documents.			
(27D) Waste packaging logs: See M019, M020, M023, P039 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET, Source Documents.			
(27E) Test plans/research project reports: See D010, D034, D036, D037, D038, D039, D040, D041, D042, D043, D044, D047, D048, D049, D050, D051, D052, D053, D054 and D057 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET, Source Documents.			
(27F) Site databases: See D019, M016, M021, M022 and M025 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET, Source Documents.			
(27G) Information from site personnel: See C004, C008, C013 and C014 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET, Source Documents.			
(27H) Standard industry documents: NA			
(27I) Previous analytical data: See C025, C075, C076, C077, M025 and M031 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET, Source Documents.			
(27J) Material safety data sheets: See M008 and M032 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET, Source Documents.			
(27K) Sampling and analysis data from comparable/surrogate Waste: See C025 and M025 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-235F-HET, Source Documents.			

(27L) Laboratory notebooks: NA	
Confirmation Information	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
(28)	Radiography: CCP-TP-053, Revision 12, August 22, 2012
	Visual Examination: CCP-TP-113, Revision 16, April 25, 2011

(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.

This WSPF was revised to address the addition of the standard large box 2 (SLB2) payload container and associated TRUPACT-III Content Code Number SR 425 to waste stream SR-W027-235F-HET. The changes do not affect the waste stream designation or assignment of Environmental Protection Agency (EPA) hazardous waste numbers, as identified in the previously approved WSPF.

Reviewed by AK Expert: YES [X] Date: 7/11/2012

Reviewed by STR (if necessary): YES [X] N/A [ ] Date: 7/10/2012

Waste Stream Profile Form Certification:

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

BSSchrock	Beverly Schrock	9/20/12
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) Waste stream SR-W027-235F-HET also includes historical Transuranic Waste Baseline Inventory Report (TWIBR) ID numbers T001-235F-HET and W026-235-HET.

(2) There are an additional 43 Manipulator Sleeves that will either be repackaged into 3 SWBs or 1 SLB2. These sleeves were conservatively presented as an additional 3 SWBs.

(3) This volume consists of 1,721 55-gallon drums and 12 85-gallon overpacks that will be repackaged.

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

CHARACTERIZATION INFORMATION SUMMARY

WSPF #: SR-W027-235F-HET Rev 1

Lot #: 77

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Characterization Information Cover Page..... 002

Correlation of Container Identification Numbers to Batch Data Report Numbers..... 005

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Reconciliation with Data Quality Objectives..... 010

CIS001

CCP Characterization Information Summary Cover Page

Waste Stream #	SR-W027-235F-HET	Lot #:	77
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Richard Kantrowitz RJK	Date:	9/12/2012

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

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

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-011	Rev. 13	05/16/02	CCP Radiography Inspection Operating Procedures
CCP-TP-011	Rev. 14	07/31/03	CCP Radiography Inspection Operating Procedures
CCP-TP-011	Rev. 15	03/08/04	CCP Radiography Inspection Operating Procedures
CCP-TP-011	Rev. 16	05/02/05	CCP Radiography Inspection Operating Procedures
CCP-TP-011	Rev. 17	11/15/06	CCP Radiography Inspection Operating Procedures
CCP-TP-053	Rev. 8	06/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 11	07/20/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 12	08/22/12	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-136	Rev. 0	09/20/04	CCP Standardized Prohibited Item Remediation
CCP-TP-136	Rev. 1	01/13/05	CCP Standardized Prohibited Item Remediation
CCP-TP-136	Rev. 2	05/04/07	CCP Standardized Prohibited Item Remediation

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-106	Rev. 6	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-106	Rev. 7	12/29/10	CCP Headspace Gas Sampling Batch Data Report Preparation
CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 14	12/29/10	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 15	03/10/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 16	09/07/11	CCP Sampling of TRU Waste Containers
CCP-TP-007	Rev. 18	10/31/03	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure
CCP-TP-007	Rev. 19	03/01/04	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure
CCP-TP-007	Rev. 20	10/19/04	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure
CCP-TP-007	Rev. 21	03/11/05	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure
CCP-TP-007	Rev. 22	11/16/06	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure
CCP-TP-009	Rev. 12	09/01/03	CCP Single Sample Manifold Data Handling Procedure
CCP-TP-009	Rev. 13	10/31/03	CCP Single Sample Manifold Data Handling Procedure
CCP-TP-009	Rev. 14	10/21/04	CCP Single Sample Manifold Data Handling Procedure
CCP-TP-009	Rev. 15	11/16/06	CCP Single Sample Manifold Data Handling Procedure
CCP-TP-029	Rev. 13	06/22/04	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration
CCP-TP-029	Rev. 14	10/21/04	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration
CCP-TP-029	Rev. 15	04/25/05	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration
CCP-TP-029	Rev. 16	11/16/06	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration
CCP-TP-032	Rev. 11	12/03/03	CCP Single Sample Manifold Data Validation Procedure
CCP-TP-032	Rev. 12	05/23/05	CCP Single Sample Manifold Data Validation Procedure
CCP-TP-032	Rev. 13	05/25/06	CCP Single Sample Manifold Data Validation Procedure
CCP-TP-032	Rev. 14	11/16/06	CCP Single Sample Manifold Data Validation Procedure

Visual Examination (VE):

SW15.7-SOP-TVEF-01	Rev. 01	09/30/02	TVEF Operations
SW15.7-SOP-Weigh-01	Rev. 01	06/04/01	Toledo® Scale Operations
CCP-TP-113	Rev. 13	03/11/09	CCP Standard Waste Visual Examination
CCP-TP-113	Rev. 14	06/30/10	CCP Standard Waste Visual Examination
CCP-TP-113	Rev. 15	12/29/10	CCP Standard Waste Visual Examination
CCP-TP-113	Rev. 16	04/25/11	CCP Standard Waste Visual Examination
CCP-TP-085	Rev. 0	08/13/03	CCP TRU Visual Examination Facility Operations
CCP-TP-085	Rev. 1	10/17/03	CCP TRU Visual Examination Facility Operations
CCP-TP-087	Rev. 0	07/15/03	CCP Scale Operations
CCP-TP-087	Rev. 1	12/14/05	CCP Scale Operations
CCP-TP-087	Rev. 2	05/02/06	CCP Scale Operations
CCP-TP-087	Rev. 3	06/19/06	CCP Scale Operations
CCP-TP-087	Rev. 4	11/16/06	CCP Scale Operations
CCP-TP-087	Rev. 5	03/13/07	CCP Scale Operations
CCP-TP-088	Rev. 0	07/16/03	CCP Program Data Generation Level Review for VE
CCP-TP-088	Rev. 1	10/20/03	CCP Program Data Generation Level Review for VE

Data Generation Review (SRS):

WP-AP-0016		02/15/01	WIPP Disposal Program Data Generation Level Review for Visual Examination

CIS002

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 11	03/23/05	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 12	05/25/06	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 13	07/21/06	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 14	11/16/06	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 15	11/22/06	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 16	04/26/07	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 14	03/29/05	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 15	08/16/05	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 16	06/06/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 17	10/11/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 18	11/16/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 19	12/22/06	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	08/16/08	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-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 24	12/28/11	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 14	09/03/03	CCP Sampling Design and Data Analysis for RCRA Characterization
CCP-TP-003	Rev. 15	11/16/06	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 16	10/02/07	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-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 15	03/31/05	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 16	02/27/06	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 17	06/05/06	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 24	11/28/11	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 16	04/22/05	CCP TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 17	12/29/05	CCP TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 18	05/01/06	CCP TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 19	11/16/06	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 20	02/07/07	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 21	05/21/07	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/07	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 25	01/22/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 26	05/27/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 27	12/14/09	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 28	05/12/10	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 30	05/21/12	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 11	03/10/05	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 12	03/22/06	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 13	11/16/06	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 14	03/28/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 15	08/10/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 16	10/31/07	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	08/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 20	08/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 13	05/09/05	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 14	12/29/05	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 15	03/22/06	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 16	11/16/06	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 17	11/16/06	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 18	11/16/06	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 19	05/22/07	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 20	11/02/07	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-004	Rev. 19	03/14/05	CCP/SRS Interface Document
CCP-PO-004	Rev. 20	11/02/05	CCP/SRS Interface Document
CCP-PO-004	Rev. 21	03/31/06	CCP/SRS Interface Document
CCP-PO-004	Rev. 22	11/16/06	CCP/SRS Interface Document
CCP-PO-004	Rev. 23	01/31/07	CCP/SRS Interface Document
CCP-PO-004	Rev. 24	06/28/07	CCP/SRS Interface Document

CIS003

CCP-PO-004	Rev. 25	05/20/08	CCP/SRS Interface Document
CCP-PO-004	Rev. 26	08/26/08	CCP/SRS Interface Document
CCP-PO-004	Rev. 27	05/22/09	CCP/SRS Interface Document
CCP-PO-004	Rev. 28	12/29/10	CCP/SRS Interface Document
CCP-PO-004	Rev. 29	07/05/11	CCP/SRS Interface Document
CCP-PO-004	Rev. 30	10/17/11	CCP/SRS Interface Document

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CIS004

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream # SR-W027-235F-HET Lot # 77

Container ID Number	NDA BDR	RTR BDR	VE BDR	HSG Sampling BDR	HSG Analytical BDR		Load Management/ Overpack Yes
SR109022*	SRNDA999	SRRTR1719	N/A	N/A[1]	060706A1	N/A	N/A
SR109113*	SRNDA417	SRRTR1093	N/A	N/A[1]	030804B1	N/A	N/A
SR131222*	SRNDA669	SRRTR1438	N/A	N/A[1]	091404A1	N/A	N/A
SR138559*	SRNDA920	SRRTR1719	N/A	N/A[1]	100605A1	N/A	N/A
SR140442*	SRNDA565	SRRTR1291	N/A	N/A[1]	060904B2	N/A	N/A
SR147120*	SRNDA1086	SRRTR1847	N/A	N/A[1]	060706A1	N/A	N/A
SR501101*	SRLBC0179	N/A	SRVEFW0291	N/A[1]	100604A1	N/A	N/A
SR502032*	SRSGS270	SRSRTR0255	N/A	SRHSGS080005	ECL08019M	ECL08019G	N/A
SR513354*	SRNDA828	SRRTR1646	N/A	N/A[1]	052305B1	N/A	N/A
SR514848*	SRNDA1618	SRSRTR0295	N/A	SRHSGS080002	ECL08015M	ECL08015G	N/A
SR515026*	SRNDA828	SRRTR1642	N/A	N/A[1]	050505B1	N/A	N/A
SR515081*	SRNDA1580	SRSRTR0274	N/A	SRHSGS080003	ECL08020M	ECL08020G	N/A
SR518516*	SRNDA961	SRRTR1799	N/A	N/A[1]	042706A1	N/A	N/A
SR518554*	SRNDA673	SRRTR1442	N/A	N/A[1]	091804B1	N/A	N/A
SR518587*	SRLBC0231	SRSRTR0375	N/A	SRHSGS080002	ECL08015M	ECL08015G	N/A
SR518726*	SRSGS133	N/A	SRVEFW0211	SRHSGS080003	ECL08020M	ECL08020G	N/A
SR522426*	SRLBC0047	N/A	SRVEFW0265	SRHSGS080002	ECL08015M	ECL08015G	N/A
SR557717*	SRNDA658	SRRTR1423	N/A	N/A[1]	090804B1	N/A	N/A
WMAPSWB348*	SRLBC0341	SR4RTR0169	N/A	SRHSG1206	ECL12010M	N/A	N/A
WMAPSWB401*	SRLBC0275	SR4RTR0135	N/A	SRHSG1107	ECL12001M	N/A	N/A
WMAPSWB404*	SRLBC0275	SR4RTR0135	N/A	SRHSG1107	ECL12001M	N/A	N/A
WMAPSWB421*	SRLBC0323	SRLBR0009	N/A	SRHSG1203	ECL12005M	N/A	N/A
** These containers were randomly selected for headspace gas sampling and analysis for the Verification of Hazardous Waste							
SR147075**				SRHSGS080002	ECL08015M	ECL08015G	
SR511226**				SRHSGS080002	ECL08015M	ECL08015G	

* All Containers were submitted as a part of SR-W027-235F-HET Lot 1 - 3. They are included in this cross correlation for completeness.

[1] No sampling BDR is listed because the Agilent On-Line GC/MS system was utilized and a sampling BDR is not generated.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

9/12/2012
Date

CIS005

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: SR-W027-235F-HET Rev 1

Waste Stream Headspace Gas Lot Number 1 through 4

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Acetone	Log	15	24	6.40	3.00	1.27	3.35	100	4.61		
Benzene	Log	9	24	3.04	-0.31	1.82	0.18	10	2.30		
Bromoform	Log	0	24	0.44	-1.86	1.85	-1.36	10	2.30		
Butanol	Log	4	24	3.73	0.10	2.14	0.67	100	4.61		
Carbon Disulfide[a]	Log	2	12	-0.51	-2.29	1.08	-1.86	10	2.30		
Carbon tetrachloride	SQRT	2	24	1.97	0.83	0.61	0.99	10	3.16		
Chlorobenzene	SQRT	2	24	1.94	0.87	0.60	1.03	10	3.16		
Chloroform	SQRT	7	24	2.07	0.99	0.50	1.13	10	3.16		
Chloromethane[a]	SQRT	11	12	14.14	5.05	4.35	6.77	10	3.16	Yes	(2)
Cyclohexane[a]	Log	1	12	-0.60	-2.46	1.20	-1.98	10	2.30		
1,1-Dichloroethane	Log	4	24	4.36	-0.61	2.08	-0.05	10	2.30		
1,2-Dichloroethane	SQRT	6	24	1.97	1.08	0.65	1.26	10	3.16		
1,1-Dichloroethylene	Log	0	24	1.01	-0.94	1.78	-0.46	10	2.30		
cis-1,2-Dichloroethylene[a]	Log	1	24	2.05	-1.01	2.07	-0.45	10	2.30		
trans-1,2-Dichloroethylene	Log	1	24	1.18	-0.85	2.03	-0.30	10	2.30		
1,2-Dichloropropane[a]	SQRT	2	12	0.67	0.33	0.22	0.42	10	3.16		
Ethyl benzene	Log	0	24	1.40	-1.09	2.08	-0.53	10	2.30		
Ethyl ether	SQRT	0	24	1.40	0.75	0.41	0.86	10	3.16		
Methanol	Log	5	24	4.22	1.98	0.69	2.16	100	4.61		
Methyl ethyl ketone	SQRT	12	24	5.10	2.23	0.97	2.49	100	10.00		
Methyl isobutyl ketone	Log	4	24	2.44	0.08	2.38	0.73	100	4.61		
Methylene chloride	Log	9	24	2.83	0.22	1.79	0.70	10	2.30		
1,1,2,2-Tetrachloroethane	SQRT	0	24	1.82	0.75	0.55	0.90	10	3.16		
Tetrachloroethylene	Log	1	24	1.25	-1.02	2.19	-0.43	10	2.30		
Toluene	Log	11	24	3.83	0.37	1.77	0.71	10	2.30		
1,1,1-Trichloroethane	Log	6	24	4.71	-0.58	2.83	0.18	10	2.30		
Trichloroethylene	Log	2	24	4.55	-0.81	2.47	-0.14	10	2.30		
Trichlorofluoromethane[a]	Log	0	12	-0.51	-2.53	1.41	-1.98	10	2.30		

CCS006

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: SR-W027-235F-HET Rev 1

Waste Stream Headspace Gas Lot Number 1 through 4

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
1,1,2-Trichloro-1,2,2-trifluoroethane	SQRT	1	24	1.36	0.73	0.47	0.86	10	3.16		
1,3,5-Trimethylbenzene[a]	SQRT	0	12	0.77	0.35	0.22	0.43	10	3.16		
1,2,4-Trimethylbenzene[a]	Log	0	12	-0.60	-2.38	1.14	-1.93	10	2.30		
m,p-Xylene[b]	SQRT	1	24	1.99	0.88	0.61	1.04	10	3.16		
o-Xylene	SQRT	1	24	1.88	0.91	0.63	1.08	10	3.16		
Formaldehyde[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine[d]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[a] These compounds are either 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 or have been sampled for completeness. These are not part of the target analyte list, but samples may be analyzed for these compounds.
[b] These xylene isomers cannot be resolved by the analytical methods employed in the program. m-Xylene and p-Xylene will be reported as "Total m-p-Xylene."
[c] Required only for homogenous solids and soil/gravel waste from Savannah River Site.
[d] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

Comments:

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

(2) There is no documentation in AK indicating that waste stream SR-W027-235F-HET contains discarded commercial chemical products, off-specification species, container residues, or spill residues thereof. This waste stream is therefore not a U-listed hazardous waste as defined in 40CFR261 and U045 is not assigned for Chloromethane (CAS 74-87-3).

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

9/12/2012
Date

CTS007

CCP Headspace Gas Summary Data

Waste Stream # SR-W027-235F-HET Lot Number (s) 1 through 4

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
Isopropyl alcohol	15526.62	2	8.33%
3-Butyn-2-ol, 2-methyl-	13.90	1	4.17%
Amylene Hydrate	23.95	1	4.17%
1,3,6-Trioxocane	138.28	2	8.33%
2-Propanol, 2-methyl-	64.79	1	4.17%
Butanal, 3-hydroxy-	283.09	1	4.17%
Acetic acid, 1-methylethyl ester	839.13	1	4.17%
1-Propene, 2-methyl-	31.73	1	4.17%
Ethanol, 2-butoxy-	47.52	1	4.17%
1,4-Dioxane	1.40	1	4.17%

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

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

SPM Signature _____ Date 9/12/2012

CIS008

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream #: SR-W027-235F-HET Lot #: 77

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	None of the containers in this Lot had prohibited items identified during Visual Examination technique.

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

Justification for the selection of RTR and VE: RTR was selected as the characterization method for many of the containers because the waste was previousely packaged and RTR meets all the Data Quality Objectives for waste stream SR-W027-235F-HET; VE was selected as the characterization method for several of the containers because the waste was newly generated and VE meets the Data Quality Objectives for NDE for waste stream SR-W027-235F-HET.

Site Project Manager Signature	Richard Kantrowitz Printed Name	9/12/2012 Date

CI5007

CCP Reconciliation with Data Quality Objectives

Waste Stream #: SR-W027-235F-HET Lot #: 77

Sampling Completeness

RTR/VE:

Number of Valid Samples: 22 Number of Total Samples Analyzed: 22
Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 22 Number of Total Samples Analyzed: 22
Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: 24 Number of Total Samples Collected: 24
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples: 24 Number of Total Samples Analyzed: 24
Percent Complete: 100 (QAO is ≥90%)

Total VOC

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

Total SVOC

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

Total Metals

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

CIS010

CCP Reconciliation with Data Quality Objectives

Waste Stream #: SR-W027-235F-HET Lot #: 77

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

CCS011

CCP Reconciliation with Data Quality Objectives

Waste Stream #: SR-W027-235F-HET Lot #: 77

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

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	Y	Y	Y
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) | 9/12/2012 (Date)

CTS012

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: WASTE STREAM SR-W027-235F-HET

Overview:

Waste stream SR-W027-235F-HET consists of Contact Handled (CH) transuranic (TRU) heterogeneous debris waste generated from the F-Area Materials Storage Facility (FAMS), also referred to as Building 235-F. The primary mission of the FAMS, for the Savannah River Site (SRS), was the conversion of Np-237 oxide into billets for extrusion into reactor targets that were subsequently irradiated and processed to recover Pu-238 and then converted to an oxide. The Pu-238 was ultimately fabricated into various types of fuel forms in the Plutonium Fuel Form (PuFF) Facility within FAMS. The Metallography Laboratory (Met Lab) and the Plutonium Experimental Facility (PEF) were also located in FAMS. The Met Lab supported the PuFF operation by preparing and examining the product. The PEF developed and demonstrated processes for the production of fuel forms. Heterogeneous debris waste resulted from FAMS operations conducted in the ABL, PuFF, PEF, and Met Lab and related support operations (e.g., routine maintenance and renovation and decommissioning).

This waste stream consists of FAMS heterogeneous debris waste generated during or contaminated by fuel fabrication, development, and examination operations. Therefore, FAMS is a Department of Energy (DOE) defense nuclear materials production and defense research and development facility and this waste stream is defense related waste.

This summation of the Acceptable Knowledge (AK) Summary Report includes information to support Waste Stream Profile Form (WSPF) number SR-W027-235F-HET, Rev. 1 for mixed heterogeneous debris waste generated at SRS. The WSPF was originally approved on May 21, 2004. The primary source of information for this Summation is CCP-AK-SRS-6, Central Characterization Project Acceptable Knowledge Summary Report For Savannah River Site F-Area Materials Storage Facility, Waste Streams: SR-W027-235F-HET, SR-W027-235F-HOM, SR-W027-235F-HEPA, Revision 9, September 11, 2012.

Waste Stream Identification Summary:

Waste Stream Name:	Heterogeneous Debris from Building 235-F
Waste Stream Number:	SR-W027-235F-HET
Dates of Waste Generation:	August 1973 to April 2012
Waste Stream Volume – Current:	1,733 55-gallon drums[1] 54 standard waste boxes (SWBs)[2] 2 SLB2s
Waste Stream Volume – Projected:	2 55-gallon drums per year
Summary Category Group:	S5000 – Debris Waste
Waste Matrix Code Group:	Heterogeneous Debris Waste

1. This volume consists of 1,721 55-gallon drums and 12 85-gallon overpacks that will be repackaged.
2. There are an additional 43 Manipulator Sleeves that will either be repackaged into three SWBs or one SLB2. These sleeves were conservatively presented as an additional three SWBs.

Waste Matrix Code:	S5400
TRUPACT-II Content Code Numbers:	SR 125/SR 225, SQ 154
TRUPACT-III Content Code Number:	SR 425
Annual Transuranic Waste Inventory Report Identification Number:	SR-W027-235F-HET

Waste Stream Description and Physical Form:

Waste stream SR-W027-235F-HET is comprised primarily of numerous organic and inorganic debris waste items. "Job control" waste generally consists of ceramic (e.g., shields, tubes), cloth (e.g., cotton diapers, rags, rope, wipes), glass (e.g., glassware, leaded glass, light bulbs), metal (e.g., equipment, instruments, Manipulators, tools), paper (e.g., cardboard, cartons, wipes), plastic (e.g., bags, personal protective equipment, sheeting, tape, tubing), rubber (e.g., neoprene gloves, leaded gloves), and wood (e.g., High Efficiency Particulate Air [HEPA] filters). The waste may include small amounts of homogeneous solids such as absorbent material (e.g., Celite, soda ash, Oil-Dri) used to solidify aqueous and organic liquids (e.g., hydrochloric acid, sodium hydroxide, acetone, ethyl alcohol), floor sweepings, inorganic sludge, and sand. In addition, small quantities of poly bottles (100 milliliters, 500 milliliters, two liters) containing immobilized liquids are also present.

The waste stream meets the definition of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream was generated during the production of nuclear materials and associated support operations (e.g., research operations).

Point of Generation:

Location

Waste stream SR-W027-235F-HET was generated at SRS in Aiken, South Carolina. The waste is currently stored at the SRS E-Area TRU waste storage pads.

Area and/or Buildings of Generation

Waste stream SR-W027-235F-HET was generated at the FAMS, also referred to as Building 235-F, located near the center of SRS east of the 221-F canyon building.

Generating Processes:

Description of Waste Generating Processes

This section provides descriptions of FAMS operations conducted in the ABL, PuFF, PEF, and Met Lab that generated waste from production of nuclear materials and related support operations.

<u>Actinide Billet Line</u>

The primary operation of the ABL was to manufacture neptunium oxide and aluminum powder billet assemblies. The assemblies were transferred to 300-Area where they were extruded into reactor targets. Irradiated targets were processed in H-Canyon to extract Pu-238, which was

converted to oxide in the HB-Line. The principal operations involved in billet assembly production were blending of Np-237 oxide and aluminum powder, die preparation, cold pressing, loading compacts in an aluminum billet, welding, and leak testing (References C036, D004, D005, D006, D012, D017, D065, D069, M004, P014, P037, U002).

Billets fabricated from other actinide oxides (e.g., Mark 41 plutonium billets) used essentially the same operations and conditions used for production of neptunium billets (References C019, D068).

Plutonium Fuel Form Facility

The primary function for the PuFF facility was to produce encapsulated Pu-238 oxide fuel forms. The Multi-hundred Watt (MHW) Heat Source was the initial type of fuel form produced in the facility until it was replaced in April 1980 by the General Purpose Heat Source (GPHS) fuel form (Reference D007).

The GPHS fuel form was made by hot pressing a blended Pu-238 oxide (nominally 83.5 percent Pu-238 oxide – 13.8 percent Pu-239 oxide) shard mixture prepared from calcined plutonium oxalate powder received from the HB-Line. Feed processing included oxygen-16 enrichment, ball milling, compaction, granulation, and sintering. After final heat treatment, the fuel pellet was encapsulated in iridium-clad vent sets by tungsten inert gas welding. After decontamination of the exterior surface of the iridium and welding the primary shipping container, the encapsulated fuel pellet was shipped to the Mound Facility for final RTG assembly. The MHW fuel form process was much the same as the newer GPHS (References C007, C009, D006, D007, D009, D010, D043, D074, P046, P076, P078, P079, P080, P092, P095, P096, P097, P098, P099, P100, P101, P102, P103, P104, P105, P106, P107, P108, P111, P112, P113, P123, P124, P130, P137, P138).

Various heat source assemblies, intact or failed generators no longer required for operation or testing, may have been returned to SRS for disassembly in the PuFF facility for subsequent recovery of Pu-238 and noble metals (References D007, P132).

Metallography Laboratory

The Met Lab was located on the second floor of FAMS. Gram quantities of potentially dispersible material were handled in the metallographic facility. Pu-238 oxide fuel pellets, shard intermediates, and welded iridium were manually transferred from the PuFF facility for metallographic preparation and examination. Operations included sample cutting, mounting specimens for grinding, ultrasonic cleaning, vibratory polishing, electrolytic etching, and microscopic examination (References D006, D007, D010, P044, P133).

Plutonium Experimental Facility

The PEF provided capability for developing and demonstrating processes for the production of fuel forms. The PEF was primarily intended for technical support for the operations of the PuFF facility and to provide development of improved processes and fuel forms. Processing involved converting oxide powder into fuel forms for heat sources by powder ceramic and metallurgical processes. Feed processing was essentially the same as in the PuFF facility and included oxygen-16 enrichment, ball milling, compaction, granulation, sintering, and heat treating. After the pellet was encapsulated in iridium by tungsten inert gas welding, and the exterior surface of the iridium was decontaminated, the shipping container was helium leak tested (References D002, D003, D006, D044, D070, D073, D074, P032, P039).

Routine Maintenance

During the years in which FAMS was in production, numerous preventive and periodic maintenance operations were required which generated waste. Waste generated from these operations was packaged in drums and boxes (e.g., Black Boxes, Manipulator Sleeves, poly boxes). The following operations were identified:

- Replacing manipulator boot vent filters (References P001, P007, P073)
- Cleaning and removing a plastic hut (References P003, P077)
- Replacing Cell 7 and 8 inlet air HEPA filters (References P004, P074)
- Cleaning cells and wing cabinets (References P005, P062)
- Assembly, disassembly, and disposal of manipulators (Reference P011)
- Repair of gel-filled shielding windows (Reference P019)
- Replacement of in cell lights (Reference P064)
- Replacing or decontaminating cartridge-type gloves (Reference P065)
- Replacing Zollinger gloves on PuFF cabinets (Reference P066)
- Replacing sphincter on cartridge glove port (Reference P067)
- Changing filters in the nondestructive examination cabinets (Reference P068)
- Replace mine safety appliances gas filters (Reference P069)
- Changing in-cell HEPA filters (Reference P070)
- Replacing wand vacuum filters (Reference P071)
- Replace furnace off-gas sintered filters (Reference P072)
- Decontaminating entry station (Reference P086)
- Changing E1 exhaust HEPA filters (P141)
- Replacement of ABL HEPA exhaust filters (P142)
- Packaging TRU HEPA Filters for Shipment (P143)

After FAMS was placed in standby mode in December 1983, preventive and periodic maintenance of the facility and equipment continued so that the process could be restarted if necessary. Routine operations included parts replacement, glove change outs, and HEPA filter change-outs (References D057, D058, D066, P010, P013, P030, P052, P053).

Renovation and Decommissioning

Various renovation and decommissioning operations have occurred in FAMS. Waste generated from these operations was packaged in drums and boxes (e.g., Black Boxes, Manipulator Sleeves, poly boxes). The following operations were identified:

- Removal of 17 of the Special Fabrication Line processing cabinets in 1974 to accommodate the new PuFF facility (References C036, C093, D012, D017).

- Removal of the Alloy Line in 1981 (References C017, D012, D035).

- Deactivation of the old Met Lab in the mid-1980s (Reference D006).

- Renovation of the ABL in the early-1990s (References C001, C002, C031).

- Removal of water and sludge from a tank in FAMS in 1991. The water was sent to Building 211-F. The sludge was packaged in drums that are included in a separate waste stream (References C025, P017). Although a couple drums identified as sludge were predominately debris waste and were assigned to this waste stream.

Waste Stream Material and Chemical Inputs

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

Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-235F-HET

Chemical/Compound	Description/Use/Source	EPA Hazardous Waste Number
Toxicity Characteristic Metals		
Arsenic	Present in samples of tank sludge	D004
Barium	Ingredient in some paints	D005
Cadmium	Present in samples of tank sludge Component of chemical used in PEF	D006
Chromium	Ingredient in commercial products (e.g., paints, Airco Hi-Test 16) Present in samples of tank sludge Component of chemical used in PEF	D007
Lead	Ingredient in commercial products (e.g., paints, C-100 Antiseize Compound) Lead containing items (e.g., glass windows, gloves, shielding plates, shot, spacers, tape, and weights) Present in tank sludge and paint samples	D008
Mercury	Alkaline batteries Mercury vapor bulbs in PuFF cells Present in samples of tank sludge Thermometers Component of chemical used in PEF	D009
Selenium	Present in samples of tank sludge	D010
Silver	Present in samples of tank sludge Component of chemical used in PEF	D011
References C002, C012, C017, C024, C025, C027, C035, C038, C065, C069, C073, C075, C076, C077, M001, M004, M006, M007, M008, M016, M040, P016, P019, P038, P058, P065, P066, P067		
Toxicity Characteristic Organics		
Benzene	Candidate seal pot fluid Ingredient in paints	D018
Carbon tetrachloride	Used in PEF	D019
Methyl ethyl ketone	Ingredient in paints and adhesives	D035
References C024, C064, C067, M001, M006, M008, M016, P010, P011		
F-Listed Organic Solvents		
Methylene chloride	Ingredient in cleaning products (e.g., Wasp and Hornet Killer used to clean inside gloveboxes)	F002
1,1,1-Trichloroethane	Ingredient in cleaning products (e.g., Magnaflux Cleaner/Remover, Wasp and Hornet Killer used to clean inside gloveboxes)	F002
Trichlorofluoromethane (Freon 11)	Ingredient in cleaning products (e.g., Genetron-11)	F002
1,1,2-Trichloro-1,2,2-trifluorethane (Freon 113)	Cleaning/decontamination Ingredient in cleaning products (e.g., Freon Precision Cleaning Agent, Lectron-13)	F002
Acetone	Cleaning/degreasing	F003
Xylene	Used in Met Lab (assumed to have been used as a solvent)	F003
References C014, C024, C026, C027, C035, C050, C065, C067, D010, D061, M001, M004, M005, M006, M008, M016, P003, P030, P065, P077, P107, P133		

RCRA Determinations

Historical Waste Management

The subject waste has historically been managed in accordance with the generator site requirements and in compliance with the requirements of the South Carolina Department of Health and Environmental Control. Many of the containers in this waste stream were historically managed by SRS as hazardous waste with the following toxicity characteristic and listed hazardous waste numbers and a small percentage of the containers were historically managed as non-hazardous (References C027, M019, M020, M021, M034, M041). A review of available AK documentation has determined that this waste is hazardous and hazardous waste numbers D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D035, F002, and F003 were retained; however, the additional hazardous waste numbers do not apply to this waste stream (i.e., D001, D003, D022, D023, D024, D025, D026, F001, F005, P012, P015, P048, P113, P120, U002, U032, U052, U080, U133, U134, U144, U151, U154, U161, U209, U211, U220, U226, U239) (References D001, D019, DR001).

The EPA hazardous waste numbers were assigned to waste stream SR-W027-235F-HET based on a review of available AK documentation to identify chemical usage and potentially hazardous materials (including commercially available products) that may have been introduced into the waste stream. AK was collected from a variety of sources, including standard operating procedures, chemical inventories, and interviews. In addition, Material Safety Data Sheets (MSDSs) were obtained for commercial products to determine the presence of potentially regulated compounds (Reference M008). Several of the EPA hazardous waste numbers were assigned due to lack of evidence that waste management practices would have segregated these compounds from the waste stream. Therefore, the Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-235F-HET table summarizes the hazardous chemical contaminants and associated hazardous waste numbers applicable to the waste stream (Reference DR001).

Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

Ignitability

The debris materials in waste stream SR-W027-235F-HET do not meet the definition of ignitability as defined in 40 Code of Federal Regulations (CFR) 261.21. The materials are not a liquid. Ignitable liquids used in FAMS include acetone, ethyl alcohol, and isopropyl alcohol. These solvents may be present in trace quantities only on wipes or rags or absorbed on Celite in 1-gallon cans (References C050, C064, C065, C067, D004, D010, M004, M005, M006, M016, P015, P092, P107, P133).

The only potentially ignitable solids identified in FAMS are aluminum powder used in the ABL and rags wetted with acid. The aluminum powder will be in the waste only in minute quantities from wiped surfaces and would have oxidized once it was removed from the glove bag and during subsequent storage (References C027, D004, D005, D006, D069, M004). The rags wetted with acid were rinsed thoroughly with water and packaged with absorbent or were neutralized to a pH greater than 7 with a 10 percent sodium hydroxide solution prior to disposal (References D010, P027, P131). Therefore, the waste is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change.

Ignitable compressed gases (e.g., aerosol cans) have not been specifically identified on waste disposal forms for FAMS TRU waste (References M019, M020, M021, M034, M040, M041, M051). However, aerosol cans (e.g., Wasp and Hornet Killer used to clean inside of gloveboxes) may be present in TRU waste. Some of the cans may be punctured but because much of the waste was generated in the 1970s and early 1980s, it is anticipated that many will not (Reference C014). Radiography or visual examination is performed to ensure the absence of ignitable compressed gases.

Oxidizers, such as aluminum nitrate, nitric acid, and potassium permanganate were used in FAMS. Aluminum nitrate was used to complex fluorides; therefore, no unreacted aluminum nitrate is present in the waste. Nitric acid and potassium permanganate were absorbed before disposal (References C050, D002, D067, M005, P130). Tests performed by SRS in 1984 to determine burning characteristics of wipes and mop heads contaminated with nitric acid and potassium permanganate indicated that these wastes should not be classified as oxidizers (Reference D085). The debris materials in the waste stream are therefore not ignitable wastes (D001).

Corrosivity

The debris materials in waste stream SR-W027-235F-HET are not liquid and do not contain unreacted corrosive chemicals; therefore, they do not meet the definition of corrosivity as defined in 40 CFR 261.22. Corrosive liquids used in FAMS include acids (e.g., hydrochloric, hydrofluoric, hydrobromic, hydriodic, nitric, oxalic) and caustics (e.g., sodium bicarbonate, sodium hydroxide) (References C004, C013, C014, C050, C065, D010, D061, M005, M006, M016, P038, P044, P082, P130). However, these materials were neutralized, and then absorbed on Oil-Dri or Celite (Reference D007). Met Lab etchants were neutralized with an ammonium pentaborate solution, and minor spills in the Met Lab were neutralized with sodium bicarbonate (Reference P038). Decontamination solutions used in the PuFF facility were neutralized using a sodium hydroxide solution (Reference P139). In addition, rags wetted with acid were rinsed thoroughly with water and packaged with absorbent or were neutralized with sodium hydroxide prior to disposal (References D010, P027, P131). Waste containing fluorides were also complexed with aluminum nitrate before removal from the glovebox (Reference D002). The debris materials in the waste stream are therefore not corrosive wastes (D002).

Reactivity

The debris materials in waste stream SR-W027-235F-HET do not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change without detonating. 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 capable of detonation or explosive reaction. The only potentially reactive metal identified in FAMS is aluminum powder used in the ABL, which can become explosive if an ignition source exists. However, the aluminum powder will be in the waste only in minute quantities from wiped surfaces and would have oxidized once it was removed from the glove bag and during subsequent storage (References C027, C035, P037). The waste may contain sulfides in the form of a dry lubricant containing molybdenum sulfide; however, this product is not considered reactive (References C024, M008). A 1974 Met Lab procedure indicates that an acid solution is used for electrolytic etching, but that a potassium cyanide solution could also be used (Reference P044). Other documentation reviewed, including general chemical inventory lists for the Met Lab indicate that acids are used for this process, not potassium cyanide (References C065, D007, M016, P038). Based on additional information from the waste generators, potassium cyanide was not used (Reference C030). The debris materials in the waste stream are therefore not reactive wastes (D003).

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

Toxicity Characteristic

Debris waste from FAMS contains or is contaminated with toxicity characteristic metal compounds as defined in 40 CFR 261.24. The metals and their potential uses or sources are identified in the Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-235F-HET table. Based on this information, EPA hazardous waste numbers D004, D005, D006, D007, D008, D009, D010, and D011 are assigned to this waste stream (Reference DR001).

Debris waste from FAMS contains or is contaminated with toxicity characteristic organic compounds as defined in 40 CFR 261.24. The organic compounds and their potential uses or sources are identified in the Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-235F-HET table. Benzene and methyl ethyl ketone were used as ingredients in the formulation of commercial chemical products (e.g., paints and adhesives) and not used for their solvent properties (i.e., to cleaning or degreasing). Debris waste contaminated with these materials does not meet the definition of an F-listed waste, therefore, only the toxicity characteristic EPA hazardous waste numbers D018 and D035 were assigned. F001 is only appropriate when solvents such as carbon tetrachloride are used in a large-scale degreasing operation such as cold cleaning or vapor degreasing on an industrial scale (Reference C010), which did not occur in FAMS. Therefore, EPA hazardous waste number D019 is assigned to this waste stream. Based on this information, EPA hazardous waste numbers D018, D019, and D035 are assigned to this waste stream (Reference DR001).

Listed Waste

F-Listed Waste

Debris waste from FAMS was mixed with hazardous wastes from non-specific sources listed in 40 CFR 261.31. Based on the information in the Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-235F-HET table, EPA hazardous waste numbers F002 and F003 are assigned to this waste stream (Reference DR001). F003-listed solvents are listed solely for ignitability, and although this waste does not exhibit the characteristic of ignitability because the solvents are not in liquid form, EPA Hazardous Waste Number F003 was assigned to waste stream SR W027-235F-HET. Because this waste stream has an approved waste stream profile form, the F003 will not be removed.

Although several F001-listed solvents were used in FAMS, EPA has provided a regulatory clarification that the F001 listing is only appropriate when the listed solvents are used in a large-scale degreasing operation such as cold cleaning or vapor degreasing on an industrial scale. FAMS did not conduct large-scale degreasing operations; therefore, F001 will not be assigned to this waste stream. Several F-listed solvents, including methanol, methyl isobutyl ketone, n-butyl alcohol, ethyl benzene, and toluene, were used as ingredients in the formulation of commercial chemical products (e.g., paints and adhesives) and not used for their solvent properties (i.e., for cleaning or degreasing). Debris waste contaminated with these materials does not meet the definition of an F-listed waste (Reference C010).

K-Listed Waste

Waste stream SR-W027-235F-HET 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

Waste stream SR-W027-235F-HET is not 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.

P- and U-listed chemicals such as acetone (U002), hydrofluoric acid (U134), and 1,1,1-trichloroethane (U226) were used in FAMS. However, no pure product or unused chemicals would have been placed into the TRU waste stream (References C027). Beryllium may be present in the waste stream but does not meet the definition of a P015-listed waste. FAMS did not process beryllium materials. Beryllium exists only in particulate form as a contaminant in the plutonium fuel forms and billets fabricated in FAMS (Reference M027). Therefore, waste stream SR-W027-235F-HET is not a P- or U-listed waste (Reference DR001).

Polychlorinated Biphenyls

The debris materials in waste stream SR-W027-235F-HET do not contain polychlorinated biphenyls per 40 CFR, Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and use Prohibitions (References C014, D002, D005, D006, D007, D014, D030, M004, P027, P031, and P064).

Prohibited Items

Based on the review of the container documentation, no prohibited items were identified in waste stream SR-W027-235F-HET (References M019, M020, M021, M034, M040, M041, M051).

According to a 1974 and a 1978 procedure, liquid wastes originating from cabinets were placed in plastic bottles, which were capped and sealed with plastic tape. The bottles of liquid were removed from the cabinet through a bag-port and placed in plastic bags or a small box lined with a plastic bag containing Celite absorbent (References P027, P136). A 1976 procedure indicates that the PuFF facility had a liquid waste handling glovebox that packaged contaminated liquid waste from decontamination and rinse stations for transfer to another facility. The Met Lab also has a liquid waste handling station that packaged liquid wastes for transfer to another facility (Reference D010). The Met Lab liquid waste handling system was clogged one month after it went into operation in 1978 and subsequently abandoned (Reference D061). A 1978 report states that liquid wastes from the PEF were packaged and transferred to HB-Line recovery or to the 200-Area radioactive waste handling system for transfer to underground storage tanks (Reference D002). Documentation from 1982 indicates that liquid wastes from PuFF were absorbed on Oil-Dri or Celite (References D007, P133). Based on this documentation, there is a potential that the waste may contain bottles of liquid that were not absorbed.

A 1974 procedure indicates that wet solid waste was placed in ice cream cartons or plastic bags and then into a cardboard box or 5-gallon container lined with a plastic bag containing Celite absorbent. A 1982 procedure states that wet solid waste was placed in ice cream cartons or plastic bags containing Celite to absorb liquids (References P031, P027). Therefore, there may be ice cream cartons or plastic bags containing prohibited liquids.

Procedures from 1982 and 1983 indicate that if the outside of the plastic bag was contaminated, it was removed from the 5-gallon container and placed into an additional plastic bag and sealed with tape. A 1989 procedure indicates that if the bag was contaminated, it was returned to the 5-gallon container which was re-sealed (References P020, P031). Therefore, there is the potential for sealed containers greater than 4-liters in the waste.

There is also a potential for ignitable compressed gases (e.g., aerosol cans) to be present in TRU waste. Some of the cans may be punctured but because much of the waste was generated in the 1970s and early 1980s, it is anticipated that many will not (Reference C014).

Containers with prohibited items identified during characterization activities will be segregated then treated and/or repackaged to remove the items prior to certification and shipment (References P148, P149, P152).

Method for Determining Waste Material Parameters Weights per Unit of Waste

To estimate the waste material parameter weight percentages for waste stream SR-W027-235F-HET, data were obtained from the Waste Data System (WDS), formerly known as the WIPP Waste Information System database as of October 3, 2006. The WDS waste material parameter data were derived from radiography and visual examination of FAMS debris waste by the current CCP TRU Waste Certification Program at SRS. In addition, for waste generated since implementation of the Transuranic Waste Container Characterization (TWCC) form (OSR 29-90), waste material parameter weight percentages estimated by the generator were utilized if the container was not in WDS. A statistical analysis of the data was performed, the results of which are presented in the Waste Stream SR-W027-235F-HET Waste Material Parameters table.

Waste Stream SR-W027-235F-HET Waste Material Parameters

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	28.5%	0.0 - 98.6%
Aluminum-based Metals/Alloys	0.4%	0.0 - 81.9%
Other Metals	0.5%	0.0 - 70.2%
Other Inorganic Materials	4.7%	0.0 - 96.1%
Cellulosics	6.5%	0.0 - 89.0%
Rubber	12.7%	0.0 - 94.4%
Plastics (waste materials)	46.6%	0.7 - 100.0%
Organic Matrix	0.0%	0.0 - 0.0%
Inorganic Matrix	<0.01%	0.0 - 5.7%
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 isotopic ratios for waste stream SR-W027-235F-HET as a whole, the total gram value for each individual radionuclide was divided by the total mass of all radioactive constituents in the waste stream and converted to a percentage. This result is listed as "Total Radionuclide Wt%." To determine the radionuclide weight percent range for individual containers, the radiological mass in each container in the waste stream was summed. The mass of each individual radionuclide in a container was divided by the total radiological mass for that container and converted to a percentage. The minimum and maximum results are listed as "Radionuclide Wt% Range for Individual Containers." The same process was applied to determine "Total Radionuclide Ci%" and "Radionuclide Ci% Range for Individual Containers" (Reference C097). For this waste stream, Pu-238 and Np-237 are the two most predominant radionuclides by mass.

Radiological Distribution for Waste Stream SR-W027-235F-HET

Isotope	Total Radionuclide Wt%[1]	Radionuclide Wt% Range for Individual Drums[2]	Total Radionuclide Ci%	Radionuclide Ci% Range for Individual Drums	Suspected Present (Yes/No)
WIPP Required Radionuclides					
Am-241	Trace[3]	Trace – 2.78%	Trace	Trace – 7.52%	Yes
Pu-238	**27.84%**	Trace – 81.69%	**94.12%**	Trace – 98.86%	Yes
Pu-239	8.90%	Trace – 93.11%	0.11%	0.1 – 7.90%	Yes
Pu-240	1.07%	Trace – 32.0%[7]	0.05%	Trace – 3.05%	Yes
Pu-242	0.15%	Trace – 60.04%	Trace	Trace – 0.01%	Yes
U-233	Trace	Trace	Trace	Trace	Yes
U-234	0.16%	Trace – 19.60%	Trace	Trace – 83.52%	Yes
U-238	1.09%	Trace – 15.10%	Trace	Trace – 0.05%	Yes
Sr-90[5]	Trace	Trace	Trace	Trace – 0.4%	Yes[4]
Cs-137	Trace	Trace	Trace	Trace – 0.9%[7]	Yes[4]
Additional Radionuclides					
C-14	Trace	Trace – 0.01	Trace	Trace – 0.4%	Yes
Co-60	Trace	Trace	Trace	Trace	Yes[4]
H-3	Trace	Trace	Trace	Trace – 0.5%	Yes
I-129	39.33%	Trace – 99.86%	Trace	Trace – 3.07%	Yes
Ni-59	Trace	Trace	Trace	Trace	Yes[4]
Np-237	**15.15%**	Trace – 100%	Trace	Trace – 100%	Yes
Pu-241	0.28%	Trace – 100%	**5.72%**	0.8 – 100%	Yes
Se-79	Trace	Trace	Trace	Trace	Yes[4]
Sn-126	Trace	Trace	Trace	Trace	Yes[4]
Tc-99	0.03%	Trace – 1.64%	Trace	Trace – 0.2%	Yes
Th-232	Trace	See Note 6	Trace	See Note 6	Yes
U-235	4.23%	Trace – 87.7%[7]	Trace	Trace – 1.21%	Yes
U-236	1.77%	17.2 – 42.0%[7]	Trace	Trace – 15.22%	Yes
References C011, C019, C042, C046, C049, C074, D068, M019, M021, M022, M023, M024, U008					

1 This indicates the total weight percent of each radionuclide over the entire waste stream.
2 This is the range of each radionuclide on a container-by-containers basis. Some containers with "0" listed as the lower range, will not contain the specified radionuclide.
3 "Trace" indicates <0.01 wt% for that radionuclide.
4 The presence of these radionuclides was determined from a review of source documents. These results were not identified in previous assay results submitted from SRS.
5 Sr-90 cannot be quantified by gamma spectroscopy. Sr-90 values are calculated based on Cs-137 results.
6 Th-232 was used as a surrogate during facility startup; therefore, there is the potential that some containers may contain significant amounts of thorium. Additionally, thorium is listed as an impurity in the plutonium used in PuFF.
7 The ranges of these radionuclides were expanded from the numbers indicated by analysis of burial ground records to larger ranges indicated in source documents.

Payload management will not be utilized for this waste stream.

Source Documents

Source Document Number	Title
C001	Memorandum from W.C. Reinig to S.R. Wright Re: NEPA Documentation, Draft Action Description Memorandum, Actinide Billet Line, Building 235-F (U)
C002	Basic Data Revision Neptunium Billet Line Shielding
C003	235-F (PUFF) Restart Evaluation
C004	Record of Communication – Interview of Dennis McCaskill and Dave Koester
C006	General Purpose Heat Source Program Pellet Wattage Requirements For GLL and ISPM
C007	General Purpose Heat Source Fueled Clad Acceptance Criteria
C008	Record of Communication – Interview with Sally Thomas
C009	General Purpose Heat Source (GPHS) Fuel Form Process Recommendations
C010	Letter to Robert Fixter, Re: EPA Interpretation of F-Listed Solvents
C011	Nuclear Criticality Safety Analysis 79-4 Nuclear Safety in the Fabrication and Shipment of Mark 42 Billets for the 242Pu Program
C012	Inhibitors for Hot Press Cooling Systems
C013	Record of Communication - Interview with Penny Spitzer, Brenda Legons, and Frances Corley
C014	Record of Communication – Interview with Randy Yourchak, Jeff Schaade, and Johnetta George
C015	Plutonium Experimental Facility (PEF)
C016	Office of Special Applications Supplemental FY 1990 and Preliminary FY 1991 Program and Budget Guidance
C017	Alloy Facility Status Report Week Ending November 12, 1981
C019	Mark 42 Program - FBL Impact (U)
C021	SNS Forecast of 238Pu Requirements and Missions
C024	235-F Hazardous Chemicals (U)
C025	235-F Condensate Tank Resolution (U)
C026	Program for the Handling of Hazardous Waste Rags and Wipes (U)
C027	Applicability of RCRA Waste Codes to TRU Waste Generated in 235-F
C029	Justification for Pu-238 Programs
C030	Response to question on Potassium Cyanide in Met Lab
C031	ABL Halon System Deactivation S-2988 Actinide Billet Line Project (ABL) (U)
C035	Project S-2991, Transuranic (TRU) Waste Facility Waste Characterization and Burial Container Criticality Limits
C036	Actinide Billet Line Description - EA Draft (U)
C038	Glossary of Building 235-F Terms
C039	DOT Certified Drums for SRP Shipments
C042	History - Building 235-F - 1971
C043	Summary of MK 42 Program in Building 235-F
C046	Revised 235-F and 247-F Facilities Waste Smear Sample Evaluation
C049	Manifesting 235-F Waste
C050	Chemical List for Building 235-F
C051	Experimental Development Work for PuFF Facility SNM Gamma-PHA Waste Assay Instrument (U)
C064	Candidate Solvents for Use In PuFF Facility Pressure-Vacuum Relief Devices
C065	Hazardous Materials in Workplace Zone 14 - Building 235-F & Surrounding Area
C067	PEF TRU Waste Characterization Data
C069	Inhibitors For Hot Press Cooling Systems
C073	235-F 1993 Lead Inventory (U)

Source Document Number	Title
C074	235-F Quality Control Program Mark 42 Billet Fabrication
C075	235-F Drums
C076	Inspection Report For Lead Paint From Conduit In Room #1003 at 235-F
C077	Lead Inspection of the 235-F Airlock #153
C088	E-mail to Jeff Harrison Subject: NCR-SRS-1543-07
C093	Status Report for the 238Pu Fuel Facilities for the Period March 11 - March 22, 1974
C096	E-mail to Bell, Cowlam, Mccaskill, Burruss from Greg Burbage re: 235-F Underground Condensate Storage Tank
C097	Letter to AK Records from James M. Schoen re: Evaluation of Volume, Period Generation, and Calculation of Individual and Total Radionuclide Masses and Activities for Waste Stream SR-W027-235F-HET.
C098	Email from Jeff Lunsford to Mike Papp re: Manipulator Sleeves
C099	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-W027-235F-HEPA
C100	E-mail from G.F. Lunsford to Mike Papp re: FAMS = 235-F
C105	Future Generation of SRS-6 Waste Streams
D001	Transuranic Waste Inventory Update Report, Annex J. 2003
D002	Safety Analysis of the 238PuO2 Experimental Facility
D003	Technical Standards - Plutonium Experimental Facility
D004	Technical Standards – Np237 Compact Billet Fabrication
D005	Safety Analysis - 200 Area, Savannah River Plant - Separations Area Operations - Building 235-F, Actinide Billit Fabrication Facility
D006	Safety Analysis - 200 F-Area, Savannah River Site - Building 235-F, Final Safety Analysis Report Volume 6 (Chapter 6 through 8)
D007	Safety Analysis - 200 Area, Savannah River Plant - Separations Area Operations, 238PuO2 Fuel Form Facility (Sup1)
D008	Mound Facility Annual Report for 1976 and 1977
D009	Plutonium Fuel Form Facility, Programmed Hot Press - Process and Equipment Description
D010	Plutonium Fuel Form Facility, Process and Equipment Description and Process Directions, DPSOLs 235-F-PuFF-1800 thru -3199 (U)
D011	Safety Analysis - 200 Area, Savannah River Plant, Building 235-F Vaults
D012	DOE HEU ES&H Vulnerability Assessment SRS Site Assessment Report (U)
D014	Transmittal of Draft Building 235-F Facilities Preliminary Hazards Analysis (U)
D015	Risk Identification and Reduction Report (U) For Building 235-F Facilities: Plutonium Fuel Form Facility, Plutonium Experimental Facility, and Actinide Billit Line
D017	Letters from J.C. George to J.A. Sogge and J.P. Ray Re: Building 235-F History and Building 235-F Facility Missions (Transition Cover Letter from W.H. Britton to C.C. Mason included)
D019	1995 TWBIR SRS-235-F
D025	Nuclear Power In Space
D027	An Early History of U.S. Radioisotope Thermoelectric Generators
D028	DOE Review of Plutonium-238 Production Options
D030	Process Hazards Review of the Plutonium Experimental Facility
D031	Report of an Investigation into Deterioration of the Plutonium Fuel Form Fabrication Facility (PuFF) at the DOE Savannah River Site
D034	Savannah River Laboratory Isotopic Power and Heat Sources Monthly Report and Savannah River Laboratory Monthly Report
D035	Alloy Facility Removal and Burial
D036	Savannah River Laboratory Monthly Report - 238Pu Fuel Form Processes

Source Document Number	Title
D037	Savannah River Laboratory Monthly Report - 238Pu Fuel Form Processes
D038	Savannah River Laboratory Monthly Report - 238Pu Fuel Form Processes
D039	Savannah River Laboratory Monthly Report - 238Pu Fuel Form Processes
D040	Savannah River Laboratory Monthly Report - 238Pu Fuel Form Processes
D041	Savannah River Laboratory Monthly Report - 238Pu Fuel Form Processes
D042	Savannah River Laboratory Monthly Report - 238Pu Fuel Form Processes
D043	Plutonium Fuel Form Facility
D044	Savannah River Laboratory Monthly Report
D046	Savannah River Laboratory Monthly Report
D047	Pu-238 Fuel Form Activities October 1-31, 1981
D048	Pu-238 Fuel Form Activities February 1-28, 1982
D049	Pu-238 Fuel Form Activities December 1-31, 1982
D050	Pu-238 Fuel Form Activities January 1-31, 1983
D051	Pu-238 Fuel Form Activities February 1-28, 1983
D052	Pu-238 Fuel Form Activities January 1-31, 1983
D053	Pu-238 Fuel Form Activities March 1-31 and April 1-30, 1983
D054	Pu-238 Fuel Form Activities May 1-31, 1983
D057	238Pu Fuel Form Activities - April 1, 1986 - March 31, 1987
D058	Separations 235-F Facility Transuranic (TRU) Waste Certification Plan
D061	Replace Metallurgical Laboratory Glove Box, Building 235-F
D063	Fuel Pellet Encapsulation Cells
D064	Separations Incident
D065	The NpO2-Al Compact Billet Fabrication Process
D066	Pu-238 Fuel Form Activities April 1-30, 1984
D067	235-F Transuranic (TRU) Waste Characterization Plan (U)
D068	Mark 41 Billet Fabrication Program Building 235-F
D069	Mark 53 Fabrication Process Description for Initial Production
D070	Technical Standards Plutonium Experimental Facility
D072	Savannah River Site Waste Acceptance Criteria Manual-1S, E-Area, TRU Pads Transuranic Waste Acceptance Criteria
D073	Decontamination of Iridium Encapsulated PPO Spheres
D074	Building 235-F Plutonium Experimental Facility (PEF) Plutonium Iridium Facility (PIF)
D075	235-F Facility Radioisotopic Sampling Plan
D085	Separations Monthly Report for August 1984
DR001	EPA Hazardous Waste Code Assignment Discrepancy Report
DR002	Discrepancy Resolution for NCR-SRS-1543-07
DR003	Discrepancy Resolution: Sludge Hazardous Waste Numbers
DR004	Discrepancy Resolution: Content Code 002 Drums Containing Predominantly Debris Waste
M001	Departmental Hazardous Chemicals Inventory
M002	Evaluation of Waste Material Parameters from Building 235-F 29-90 Forms
M003	Evaluation of Volume Percent Organic Data from Building 235-F TWPD Forms
M004	Facsimile Transmittal Re: Process Flow Diagrams
M005	Hazardous Materials in Workplace Zone 14 - Building 235-F & Surrounding Area
M006	Review of Chemicals in Standard Operating Procedures
M007	PEF Inventory
M008	Compilation of MSDS documents for Building 235-F
M010	Request/Approval for Deviation to SRS Waste Acceptance Criteria Manual
M013	Isotopics Reported from 235-F Since 1972

Source Document Number	Title
M016	Memorandum from M.F. Tyrrell to J.C. George Re: Chemical Review For 235-F Met Lab (U)
M019	Compilation of Burial Ground Records and TRU Waste Package Data Forms
M020	TRU Waste Container Characterization (29-90) Forms
M021	SRS TRU Waste Container Database, GoWest Query for 235-F
M022	Building 235-F (ABL, PuFF, and PEF) AK Container List (Unpublished) [Attachment 8 from TP-005 procedure]
M023	Summary of 235-F and Puff Inventory Log Book Data
M024	Radionuclide Characterization
M025	SRS Vent and Purge Database
M027	Acceptable Knowledge Beryllium Assessment for CCP-SRS AK Reports 1 through 7
M028	Email from Jeff Lunsford dated 8/31/2005, SRS Inventory Update
M029	Evaluation of Additional Containers for Waste Stream SR-W027-235F-HET
M030	Evaluation of Additional Containers for Waste Stream SR-W027-235F-HET
M031	Correspondence to Robinson, Goetzman, and Key from C.J. Coleman re: ADS Analysis of 235-F Underground Condensate Tank Samples
M032	Collection of MSDSs
M033	RTR Quick Screen Data Sheets for Content Code 002 Sludge Drums from FAMS Facility
M034	Evaluation of Additional Containers for Waste Stream SR-W027-235F-HET
M037	BGRs, TRU Waste Drum Data Sheets, and Additional Container Data for Waste Stream SR-W027-235F-HEPA
M038	HEPA Drum Additions Spreadsheet
M039	HEPA Addition Spreadsheet for Containers Added During Revision
M040	Container-Specific Records (e.g., 29-90 Forms) and Evaluation for Containers Added to Waste Stream SR-W027-235F-HET
M041	Evaluation of Additional Containers for Waste Stream SR-W027-235F-HET
M050	Evaluation of Additional Containers for SRS-6 Waste Stream SR-W027-235F-HEPA
M051	Container-Specific Records for Containers Added to Waste Stream SR-W027-235F-HET
M052	Container-Specific Records (e.g., BGRs) for Containers Added to Waste Stream SR-W027-235F-HEPA
M057	Occurrence Report: Identification of Hazardous Waste in FAMS Condensate Tank, SEP-S235-1991-1
M058	Burial Ground Records and TRU Waste Package Data Forms for Sludge in Waste Stream SR-W027-235F-HOM
P001	Replacing Manipulator Boot Vent Filters
P003	Cleaning and Removing Plastic Hut
P004	Replacing Cell 7 and 8 Inlet Air HEPA Filters
P005	Cleaning Cells and Wing Cabinets
P007	Replacing Manipulator Boot Vent Filters
P008	Removing Cell Waste
P009	Completing TRU Waste Burial Records and TRU Waste Data Package and Drum Data Sheet
P010	Removing and Installing Manipulator Model L Slave End
P011	Assembly/Disassembly and Disposal of Model L Manipulators
P013	Inspection of the 294-2F Sandfilter (U)
P014	Handling and Storing Dodecanol (U)
P015	Actions to Take for Chemical or Oil Spill Area Emergency Coordinator Response
P016	ATD-PEF WIPP Waste Procedure
P017	Pumping Out the 235-F Condensate Tank for Disposal

Source Document Number	Title
P019	PuFF Building 235-F Repair of Gel-Filled Shielding Windows
P020	Packaging and Sealing TRU Waste, HEPA Filters, or Hut Waste in 55-gallon Drums Carbon Steel Boxes or Polyethylene Boxes ONLY THE LATEST VERSION IS UCNI
P022	Packaging TRU Waste into a Red Pail
P024	TRU Drum Assembly
P026	Packaging TRU Waste into a Drumliner
P027	Handling Waste
P030	Cleanup of Rotameters, Service Lines and Filters
P031	Solid Radioactive Waste Handling in Building 235-F
P032	Plutonium Experimental Facility Technical Standards (U)
P036	PuFF Feed Material Acceptance
P037	Technical Standards Master Copy
P038	Metallographic Laboratory Reference Plan (U)
P039	Plutonium Experimental Facility Laboratory Procedures
P042	Using the PHA Analyzer
P044	Process Data for PuFF Facility Metallographic Preparation of Iridium
P045	Removing Neptunium Cabinet Waste
P046	Preparing a Compacting Die
P047	Solid Radioactive Waste Handling in Building 235-F
P048	Packaging and Sealing TRU Waste in 55-Gallon Drums
P049	Removing Cell Waste
P050	Using PuFF and Compact Line Bag Ports
P052	Removing Zollinger Gloves and Installing Blanks on the Actinide Billet Line (U)
P053	Changing Gloves and Bags in PEF (U)
P055	Decontaminating Seal Tubes
P057	Removing Cell Waste
P058	Using Cabinet and Cell Gloves
P061	Analyzing for Plutonium with the PHA
P062	Cleaning Cells and Wing Cabinets
P064	Replacement of In Cell Lights
P065	Replacing or Decontaminating Cartridge-Type Gloves
P066	Replacing Zollinger Gloves on PuFF Cabinets
P067	Replacing Sphincter on Cartridge Glove Port
P068	Changing Filters in the NDE Cabinets
P069	Replacing MSA Gas Filters
P070	Changing In-Cell HEPA Filters
P071	Replacing Wand Vacuum Filters
P072	Replace Furnace Off-Gas Sintered Filters
P073	Replacing Manipulator Boot Vent Filters
P074	Replacing Cell 7 and 8 Inlet Air HEPA Filters
P075	Removing Two-Piece Plastic Suit
P076	Ultrasonic Weld Examination (Single Probe) - GPHS Fueled Clad
P077	Cleaning and Removing Plastic Hut
P078	Encapsulated Fuel Form Review Board (EFFRB)
P079	Iridium Encapsulation of GPHS Pellets
P080	PuFF Feed Material Acceptance
P082	Operation of Seal Pots
P084	Loading and Unloading 238PuO2 Shipping Container

Source Document Number	Title
P086	Decontaminating Entry Station
P089	Transferring Pellets Between Cell 6 and Met Lab
P092	Ball Jar Preconditioning
P095	Charging Cold Press Die
P096	Batching Oxide For Oxygen Exchange
P097	Charging A Ball Mill Jar
P098	Ball Mill Operation
P099	Operation of Neutron Monitor
P100	Pellet Hot Pressing
P101	Sintering High-Fired Shards in EP 2-1-6 (Sintering Furnace)
P102	Operating Cold Press
P103	Breaking up Cold Pressed Compact
P104	Shard Sintering Preparations
P105	Crushing and Sizing Shards
P106	Batching Sintered Oxide for Hot Pressing
P107	Inspection of Stainless Steel Sieves (Data Sheet Included)
P108	Cold Pressing
P111	Disassembling Graphite Die
P112	Operating Hot Press Systems
P113	Operating the Hydraulic System
P123	Using Deionized Water In Decontamination Apparatus in Cell 7
P124	Secondary Decontamination in Cell 8
P127	Analyzing for Plutonium with the PHA
P130	Using Decontamination Solutions in Decontamination Apparatus in Cell 7
P131	Neutralization of Cotton Diapers Wetted With Acid
P132	Cutting Open Returned GPHS Shipping Container
P133	Dye Check of Iridium Weld
P136	Removal of Material From Liquid Waste Handling Cabinet
P137	Decontamination of Test Welds in Cell 7
P138	Decontamination of Fueled Clad in Cell 7 Using SC200
P139	Neutralizing Decontamination Solutions Used in Decontamination Apparatus in Cell 7
P140	SWMF Immediate Procedure Change IPC Request Form for Concrete Culvert Polybox Removal and Repackaging (U)
P141	Changing E1 Exhaust HEPA Filters
P142	Replacement of Actinide Billet Line HEPA Exhaust Filters
P143	SOP: PACKAGING AND SEALING TRU HEPA FILTER BOXES FOR SHIPMENT
P144	Absorbing Containerized Liquids (Building 221-F)
P145	Absorbing Containerized Liquids
P146	Black Box Repackaging
P147	Shipment Preparation for TRU Containers to SWMF (U)
P148	TRU Drum Repackaging
P149	Transuranic (TRU) Waste Repackaging in H-Canyon
P150	SWMF Blackbox Repackaging (U)
P152	Packaging Sealed Containers With Liquid Waste (U)
U002	Mark 61 Target Fabrication Process Description for Initial Production
U003	Neptunium Oxide Target Tubes Process Development and Production
U004	235-F Monthly Reports (Date Range: June 1975 thru September 1983)
U008	1977 Plant History Plutonium Fuel Form Facility