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

JAN 30 2013

FEB 2013

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-W027-773A-HOM, Homogeneous Solids from SRNL

Dear Mr. Kieling:

The Department of Energy, Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number SR-W027-773A-HOM, *Homogeneous Solids from Savannah River National Laboratory* 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

130119

CBFO:NTP:JRS:GL:13-0409:UFC 5900.00

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: SR-W027-773A-HOM					
(2) Generator site name: Savannah River Site			(3) Generator site EPA ID: SC1890008989		
(4) Technical contact: Beverly Schrock			(5) Technical contact phone number: 575-234-7444		
(6) Date of audit report approval by New Mexico Environment Department (NMED): May 23, 2012					
(7) Title, version number, and date of documents used for WIPP-WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 20, June 16, 2011; CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 26, July 14, 2011; CCP-PO-004, CCP/SRS Interface Document, Revision 32, October 25, 2012					
(8) Did your facility generate this waste?	YES	X	NO		
(9) If no, provide the name and EPA ID of the original generator: NA					
Waste Stream Information					
(10) WIPP ID: SR-W027-773A-HOM			(11) Summary Category Group: S3000		
(12) Waste Matrix Code Group: Solidified Inorganics			(13) Waste Stream Name: Homogeneous Solids from SRNL		
(14) Description from the ATWIR: CH Mixed TRU Homogeneous Solids resulting from liquid absorption at the SRNL.					
(15) Defense TRU Waste:	YES	X	NO		
(16) Check One:	CH	X	RH		
(17) Number of SWBs: NA (17a) Number of SLB2s: NA	(18) Number of Drums: 3 55-gallon drums			(19) Number of Canisters: NA	
(20) Batch Data Report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers.					
(21) List applicable EPA Hazardous Waste Numbers:[1] D004, D005, D006, D007, D008, D009, D010, D011, D019, D022, D027, D028, D029, D043, F002, F004 and F005					
(22) Applicable TRUCON Content Numbers: SR 127 / SR 227					
(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-7, Revision 6, December 17, 2012, Figures 1 and 2					
(23B) Facility mission description: CCP-AK-SRS-7, Revision 6, December 17, 2012, Section 4.2					
(23C) Description of operations that generate waste: CCP-AK-SRS-7, Revision 6, December 17, 2012, Section 4.3					
(23D) Waste identification/categorization schemes: CCP-AK-SRS-7, Revision 6, December 17, 2012, Section 4.5					
(23E) Types and quantities of waste generated: CCP-AK-SRS-7, Revision 6, December 17, 2012, Section 4.4.1					
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-SRS-7, Revision 6, December 17, 2012, Section 4.4.2					
(24) Waste certification procedures: CCP-TP-030, Revision 31, November 19, 2012					

(25)Required Waste Stream Information			
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-SRS-7, Revision 6, December 17, 2012, Section 6.1			
(25B) Waste stream volume and time period of generation: CCP-AK-SRS-7, Revision 6, December 17, 2012, Section 6.2			
(25C) Waste generating process description for each building: CCP-AK-SRS-7, Revision 6, December 17, 2012, Section 6.3			
(25D) Waste Process flow diagrams: NA			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-SRS-7, Revision 6, December 17, 2012, Section 6.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See table entitled "Waste Stream SR-W027-773A-HOM Waste Material Parameters" in Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM			
(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		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 D007, P001, P003, P004, P005, P006, P008, P009, P010, P011, P012, P013, P014, P015, P016, P017, P018, P019, P020, P021, P022, P024, P025, P026, P027, P028, P029, P030, P031, P032, P033, P034, P035, P036, P037, P038, P040, P041, P042, P043, P046, P047, P048, P049 and P050 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM, Source Documents.			
(27C) Safety Analysis Reports: See D002, D019 and D037 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM, Source Documents.			
(27D) Waste packaging logs: See M001 and M002 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM, Source Documents.			
(27E) Test plans/research project reports: See C065, C066, C068, C069, C070, D006, D011, D018, D039, D040, D043, D044, D045, D047, D049, D050, D051, D052, D053, D054, D056, D057, D058, D059, D060, D061, D062, D063, D077, D078, D079, D082, D117, D125, D126 and D143 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM, Source Documents.			
(27F) Site databases: See M003, M014, M015 and M016 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM, Source Documents.			
(27G) Information from site personnel: See C040, C046, C052, C053, C054, C055, C056, C057, C058, C059, C060, C061, C071, C085 and C086 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM, Source Documents.			
(27H) Standard industry documents: See M038 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM, Source Documents.			
(27I) Previous analytical data: See C018, C031, D031, D047, D051, DR003 and M007 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM, Source Documents.			
(27J) Material safety data sheets: NA			
(27K) Sampling and analysis data from comparable/surrogate Waste: NA			
(27L) Laboratory notebooks: See M007 in the Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM, Source Documents.			

Confirmation Information	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
(28)	Radiography: CCP-TP-053, Revision 12, August 22, 2012
	Visual Examination: NA

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

Reviewed by AK Expert: YES [X] **Date:** 12/19/2012

Reviewed by STR (if necessary): YES [X] N/A [ ] **Date:** 12/20/2012

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.

Mike Ramirez for BEV SCHROCK	Beverly Schrock	1-24-13
Signature of Site Project Manager	Printed Name	Date

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

CHARACTERIZATION INFORMATION SUMMARY

WSPF #: SR-W027-773A-HOM
Lot #: 1

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CCP Characterization Information Summary Cover Page

Waste Stream #	SR-W027-773A-HOM	Lot #:	1
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Joshua Houghton	Date:	1/15/2013

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. 12	08/22/12	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-189	Rev. 2	05/04/11	CCP Box Segmented Gamma System (BSGS) Operating Procedure
CCP-TP-193	Rev. 3	08/08/11	CCP Data Reviewing, Validating, and Reporting Procedure for the Nondestructive Assay Box Counters
CCP-TP-048	Rev. 15	03/24/11	Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure

Solids Sampling:

INST-OI-73	Rev. 4	04/07/09	Manual Drum Coring Operations
INST-OI-16	Rev. 30	04/07/09	Drum Coring Operations

Solids Analysis:

CCP-TP-180	Rev. 2	12/29/10	CCP Analytical Sample Management
CCP-TP-181	Rev. 0	05/02/07	CCP Determination of Mercury by CVAA for TRU Waste Characterization
CCP-TP-182	Rev. 1	01/26/09	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-183	Rev. 0	05/02/07	CCP Microwave Assisted Digestion of Homogeneous Solids and Soil/Gravel
CCP-TP-184	Rev. 0	05/02/07	CCP Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-185	Rev. 1	11/18/08	CCP Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-186	Rev. 1	08/22/07	CCP Determination of Nonhalogenated Volatile Organic Compunds by Gas Chromatography
CCP-TP-187	Rev. 1	11/18/08	CCP Sample Preparation for Semivolatile Organic Compounds
CCP-TP-188	Rev. 2	12/29/10	CCP Analytical Data Recording, Review, and Reporting

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

WAP Certification:

CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-004	Rev. 29	07/05/11	CCP/SRS Interface Document
CCP-PO-004	Rev. 30	10/17/11	CCP/SRS Interface Document
CCP-PO-004	Rev. 31	10/01/12	CCP/SRS Interface Document
CCP-PO-004	Rev. 32	10/25/12	CCP/SRS Interface Document

CIS-002

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # SR-W027-773A-HOM

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	
SR222365	SRLBC0603	SRSRTR0550	N/A	SSG12-00005	ALD12022F, ALD12022H, ALD12022M, ALD12022N, ALD12022S, ALD12022V		N/A	N/A	N/A
SR524351	SRLBC0518	SR4RTR0205	N/A	SSG12-00005	ALD12022F, ALD12022H, ALD12022M, ALD12022N, ALD12022S, ALD12022V		N/A	N/A	N/A
SR611110	SRLBC0493	SRSRTR0494	N/A	SSC12-00005	ALD12022F, ALD12022H, ALD12022M, ALD12022N, ALD12022S, ALD12022V		N/A	N/A	N/A
SR222365**	N/A	N/A	N/A	N/A	ALD12022F, ALD12022H, ALD12022M, ALD12022N, ALD12022S, ALD12022V		N/A	N/A	N/A
SR524351**	N/A	N/A	N/A	N/A	ALD12022F, ALD12022H, ALD12022M, ALD12022N, ALD12022S, ALD12022V		N/A	N/A	N/A

** Containers SR222365 and SR524351 were sampled twice to fulfill the requirement of 5 samples for a Solids waste stream. These additional samples are represented in UCL90 calculations.

Signature of Site Project Manager

Joshua Houghton
Printed Name

1/15/2013
Date

C13-003

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: SR-W027-773A-HOM

Solids Summary Waste Stream Lot Number 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples (2,3)	Maximum (mg/kg)	Mean (mg/kg)	SD (ppmv)	UCL_{90} (mg/kg)	PRQL (mg/kg)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA HWN
Benzene	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
Bromoform	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
Carbon Disulfide	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
Carbon Tetrachloride	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
Chlorobenzene	No	0	5	0.0950	0.0910	0.0055	0.0948	10.0	N/A		
Chloroform	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
1,1 Dichloroethylene	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
1,2-Dichloroethane	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
Ethyl Benzene	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
Methylene Chloride	Log	0	5	-1.2730	-1.3065	0.0464	-1.2747	10.0	2.3026		
m,p-Xylene[a]	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
o-Xylene	No	0	5	0.0950	0.0910	0.0055	0.0948	10.0	N/A		
1,1,2,2-Tetrachloroethane	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
Tetrachloroethylene	No	0	5	0.0950	0.0910	0.0055	0.0948	10.0	N/A		
Toluene	No	0	5	0.0950	0.0910	0.0055	0.0948	10.0	N/A		
Trans-1,2-Dichloroethene	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
1,1,1-Trichloroethane	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
Trichloroethylene	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
1,1,2-Trichloroethane	No	0	5	0.1900	0.1800	0.0094	0.1864	10.0	N/A		
Trichlorofluoromethane	Log	0	5	-1.2730	-1.3065	0.0464	-1.2747	10.0	2.3026		
Vinyl Chloride	No	0	5	0.1900	0.1800	0.0094	0.1864	4.0	N/A		
Acetone	SQRT	0	5	5.0498	2.8786	1.7754	4.3323	100	10.0000		
Butanol	SQRT	0	5	5.0498	2.8786	1.7754	4.3323	100	10.0000		
Methanol	SQRT	0	5	5.0498	2.8786	1.7754	4.3323	100	4.6052		
Methyl ethyl ketone	SQRT	0	5	5.0498	2.8786	1.7754	4.3323	100	10.0000		
Ethyl ether	SQRT	0	5	7.0711	4.0476	2.4913	6.0876	100	10.0000		
Isobutanol	SQRT	0	5	5.0498	2.8786	1.7754	4.3323	100	10.0000		
Pyridine	SQRT	0	5	5.0498	2.8786	1.7754	4.3323	100	10.0000		
Formaldehyde	Log	1	5	1.1314	0.2355	0.5025	0.6801	100	4.6052		
Hydrazine	No	0	5	3.1000	2.7000	0.6471	3.1437	100	N/A		

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

Comments:

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

(2) One sample, due to dilution requirements, had an MDL that exceeded the PRQL for the following analytes: Acetone, Butanol, Methanol, Methyl ethyl ketone, Ethyl Ether, Isobutanol, and Pyridine. Therefore, only 4 samples were used for analysis.

(3) This waste stream consists of three containers. Per CCP-TP-162 and Solids Random Section Memorandum CP:11:01721, five solids samples are required for analysis. Consequently, two containers were sampled twice.

Signature of Site Project Manager

Joshua Houghton
Printed Name

1/15/2013
Date

C13-001

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

WSPF #: SR-W027-773A-HOM **Solids Summary Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples (2)	Maximum (mg/kg)	Mean (mg/kg)	SD (mg/kg)	UCL90 (mg/kg)	PRQL (mg/kg)	Transformed PRQL	UCL_{90} > PRQL Yes	EPA HWN
1,2-Dichlorobenzene	No	0	5	0.2000	0.1920	0.0076	0.1972	40	N/A		
1,4-Dichlorobenzene	No	0	5	0.2000	0.1920	0.0076	0.1972	40	N/A		
2,4-Dinitrophenol	No	0	5	0.1000	0.0960	0.0042	0.0989	40	N/A		
2,4-Dinitrotoluene	No	0	5	0.1000	0.0960	0.0042	0.0989	2.6	N/A		
Hexachlorobenzene	No	0	5	0.1000	0.0960	0.0042	0.0989	2.6	N/A		
Hexachloroethane	No	0	5	0.2000	0.1920	0.0076	0.1972	40	N/A		
2-Methylphenol	No	0	5	0.1000	0.0960	0.0042	0.0989	40	N/A		
3&4-Methylphenol	No	0	5	0.1000	0.0960	0.0042	0.0989	40	N/A		
Nitrobenzene	No	0	5	0.2000	0.1920	0.0076	0.1972	40	N/A		
Pentachlorphenol	No	0	5	0.1000	0.0960	0.0042	0.0989	40	N/A		

CF3-005

Comments:

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

(2) This waste stream consists of three containers. Per CCP-TP-162 and Solids Random Section Memorandum CP:11:01721, five solids samples are required for analysis. Consequently, two containers were sampled twice.

Signature of Site Project Manager | Joshua Houghton (Printed Name) | 1/15/2013 (Date)

CCP Solids Analysis Metals UCL_{90} Evaluation Form

WSI SR-W027-773A-HOM **Solids Summary Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples (2,3)	Maximum (mg/kg)	Mean (mg/kg)	SD (mg/kg) (2)	UCL90 (mg/kg)	PRQL (mg/kg)	Transformed PRQL	UCL_{90} > PRQL Yes	EPA HWN
Antimony	No	0	5	0.25	0.25	0.00	0.25	100	N/A		
Arsenic	No	0	5	0.45	0.45	0.00	0.45	100	N/A		
Barium	SQRT	5	5	2.10	1.20	0.61	1.61	2000	45		
Beryllium	No	0	5	0.05	0.05	0.00	0.05	100	N/A		
Cadmium	No	1	5	0.20	0.08	0.07	0.13	20	N/A		
Chromium	Log	5	5	1.03	-0.66	1.36	0.27	100	5		
Lead	Log	5	5	-0.06	-0.40	0.23	-0.24	100	5		
Mercury	No	0	5	0.01	0.005	0.00	0.00	4	N/A		
Nickel	Log	3	5	0.10	-1.98	1.26	-1.11	100	5		
Selenium	No	0	5	0.50	0.50	0.00	0.50	20	N/A		
Silver	No	0	5	0.05	0.05	0.00	0.05	100	N/A		
Thallium	No	0	5	0.30	0.30	0.00	0.30	100	N/A		
Vanadium	Log	1	5	1.10	-1.30	1.34	-0.38	100	5		
Zinc	Log	5	5	4.25	3.75	0.28	3.95	100	5		

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) No varience in data was found for Antimony, Arsenic, Beryllium, Mercury, Selenium, Silver, and Thallium, due to all non detect data points. The maximum value is used as the UCL90 value for these analytes.

(3) This waste stream consists of three containers. Per CCP-TP-162 and Solids Random Section Memorandum CP:11:01721, five solids samples are required for analysis. Consequently, two containers were sampled twice.

Signature of Site Project Manager

Joshua Houghton
Printed Name

1/15/2013
Date

CES-006

CCP Solid VOCs Summary Data

Waste Stream Number	SR-W027-773A-HOM	Solids Summary Waste Stream Lot Number	1 through 1

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

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

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

SPM Signature _____ Date 1/15/2013

CIS-007

CCP Solid SVOCs Summary Data

Waste Stream Number: SR-W027-773A-HOM

Solids Summary Waste Stream Lot Number: 1 through 1

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

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

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

SPM Signature _____ Date 1/15/2013

CLS-008

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: SR-W027-773A-HOM Lot #: 1

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

a. See Batch Data Reports

Justification for the selection of RTR and/or VE: RTR was selected as the characterization method for this lot because waste was previously packaged and RTR meets all the Data Quality Objectives for NDE for the waste.

Site Project Manager Signature	Joshua Houghton Printed Name	1/15/2013 Date

CCP Reconciliation with Data Quality Objectives

WSPF# SR-W027-773A-HOM Lot # 1/15/2013

Sampling Completeness

RTR/VE

Number of Valid Samples: 3 Number of Total Samples Analyzed: 3
Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 3 Number of Total Samples Analyzed: 3
Percent Complete: 100 (QAO is 100%)

HSG

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 VOC

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

Total SVOC

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

Total Metals

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

CCP Reconciliation with Data Quality Objectives

WSPF# SR-W027-773A-HOM Lot # 1/15/2013

	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	NA	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	Y	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	Y	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	Y	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.

CIS-011

CCP Reconciliation with Data Quality Objectives

WSPF# SR-W027-773A-HOM Lot # 1/15/2013

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	NA	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	NA	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections C3-2 through C3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

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

Comments:

None

Signature of Site Project Manager	Joshua Houghton Printed Name	1/15/2013 Date

CIS-012

Summation of Aspects of AK Summary Report: Waste Stream SR-W027-773A-HOM

Overview

Waste stream SR-W027-773A-HOM consists of contact handled (CH) Transuranic (TRU) mixed homogeneous solid waste generated at the Savannah River National Laboratory (SRNL). The mission of SRNL is to provide research & development (R&D), analytical, and process development support to Savannah River Site (SRS) nuclear materials production and waste management programs. The primary R&D categories include production, separations and recovery, waste treatment, analytical measurements, and materials technologies. Facility support operations also generate TRU waste and include renovations and decommissioning operations and maintenance and utilities. All radioactive solid waste produced at SRS is stored or disposed of at the E-Area TRU waste storage pads.

The atomic energy defense activity that applies to TRU wastes generated by the SRNL operations is defense R&D. The SRNL provides R&D in support of defense nuclear materials production. Therefore, this waste stream is defense related waste.

This summation of the Acceptable Knowledge (AK) Summary Report includes information to support Waste Stream Profile Form (WSPF) number SR-W027-773A-HOM for inorganic sludge waste generated at SRNL. The primary source of information for this Summation is CCP-AK-SRS-7, *Central Characterization Program Acceptable Knowledge Summary Report For Savannah River Site Waste Streams: SR-W027-773A-HET and SR-W027-773A-HOM,* Revision 6, December 17, 2012.

Waste Stream Identification Summary

Wastes Stream Name:	Homogeneous Solids from SRNL
Waste Stream Number:	SR-W027-773A-HOM
Dates of Waste Generation:	November 1984 – August 1986
Waste Stream Volume – Current:	3 55-gallon drums
Waste Stream Volume – Projected:	None expected
Summary Category Group:	S3000
Waste Matrix Code Group:	Solidified Inorganics
Waste Matrix Code:	S3110 – Inorganic particulates
TRUPACT-II Content Code:	SR 127/SR 227
Annual Transuranic Waste Inventory Report (ATWIR) Identification Number:	SR-W027-773A-HOM

Waste Stream Description and Physical Form:

Waste stream SR-W027-773A-HOM is mixed absorbed liquid waste (e.g., oil, tributyl phosphate, dodecane) generated in the SRNL. The waste is comprised primarily of aqueous/organic liquids and sludges contained in absorbent (e.g., Oil-Dri, Accubond, Celite, NoChar, or Aquasorb). The waste may also include small amounts of debris materials identified in waste stream SR-W027-773A-HET.

Waste Stream SR-W027-773A-HOM meets the definition of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream was generated from R&D and associated support operations.

Point of Generation

Location

Waste stream SR-W027-773A-HOM 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-W027-773A-HOM was generated the B-Wing, C-Wing, E-Wing, and F-Wing of the SRNL in A-Area.

Generating Processes

Description of Waste Generation Processes

Research and Development

The SRNL provides R&D support to SRS operations and facilities, as well as support to off-site facilities such as Hanford and Oak Ridge National Laboratory (References D091, D125, D126, D127, D128, D133, D143, M035). The primary categories include production, separations and recovery, waste treatment, analytical measurements, and materials technologies.

Production Technologies

Production technologies consist primarily of the fabrication of sources, fuels, billets, and targets (References C027, D091). Specific programs identified include the following:

- Development of Pu-239, Pu-240, Pu-242, and Am-243/Cm-244 targets for the subsequent production of Cm-244 (heat source material) and Cf-252 (neutron source material) (References C002, C012, C023, C024, C064, C065, C066, C072, C075, D003, D060, D061, D062, D069, D117, P043).

- Development of Am-241 targets for the subsequent fabrication of high-purity Pu-238 (medical grade) (References C065, C066, C072, D068, D069).

- Development of Np-237 targets for the subsequent fabrication of Pu-238 (heat grade) fuel forms (References C013, C062, C063, C065, C067, C072, D021, D068, D069).

- Development of new uranium assemblies for plutonium production, and examination and metallographic preparation failed fuel elements (References C067, D037, P004).

- Production of Cf-252 neutron sources (References C023, C024, C065, C066, C067, C070, C072, D003, D009, D013, D034, D035, D036, D079, P030).

- Production of Co-60 heat sources and other cobalt devices (References C057, C065, C066, C067, C068, C069, D039).

Separations and Recovery Technologies

Separations and recovery technologies include experiments involving dissolution, ion-exchange, precipitation, solvent extraction, and centrifugation (References C019, C043, C055, C056, D037, D001, D002, D045, D053). Some of the specific operations identified are as follows:

- Centrifugal separation of the organic (tributyl phosphate in normal paraffin hydrocarbon) and aqueous phases in support of the F-Canyon and H-Canyon separations facilities (References D037, D084).

- Determination of methods for recovery of plutonium from hydraulic oil, insoluble residues, and other materials (References D002, D037).

- Development of plutonium-aluminum alloys for recycling off-specification plutonium metal by dissolution in the canyons (Reference D037).

- Hydrofluorination of plutonium oxide to plutonium fluoride using hydrogen fluoride gas (References C029, D037).

- Ion-exchange separation of various actinides (e.g., Am-241/Cm-242 and Pu-238/Np-237) (References C066, C070, C072, D044, D052, D068, D070).

- Pu-239 recovery incinerator prototype using pyrohydrolysis technology (Reference D037).

- Processing of off-site reactor fuels, such as Southwest Experimental Fast Oxidation Reactor (SEFOR) (References C030, D077, D078).

- Recovery and purification of Am-241 (References D049, D054, D059).

- Recovery and purification of Pu-242 (Reference C068).

- Recovery of plutonium from ash, molten salt extraction residues, and electrorefining anode heel residues from Rocky Flats (References D037, D057, D058).

- Recovery of Pu-238 from scrap materials by dissolution and ion-exchange (References C066, D043).

- Special isotope separation: atomic vapor laser isotope separation, molecular laser isotope separation, and plasma separation (Reference D008).

- Testing of prototype plutonium separations units using weapons-grade plutonium from FB-Line (References C067, D091).

- The work in room F-003 includes dissolution of neptunium dioxide; separation and purification of neptunium solutions which may contain plutonium, uranium, or iron via ion exchange; and oxalate precipitation and calcining the oxalate to an oxide (Reference M035).

- Dissolution of composite materials (e.g., plutonium/beryllium, uranium/plutonium/aluminum) to support material disposition at SRS (Reference M035).

- Evaluation of a silica-supported ion exchange resin to determine the plutonium capacity and effectiveness of the resin for the clean-up plutonium solutions (Reference M035).

- Development of flowsheets for processing solids and liquids in H-Canyon and HB-line. Work includes characterization, mixing, and neutralization of aqueous process and product solutions, heat treatment of solids, and dissolution of solids in aqueous solutions (Reference M035).

- Mini-mixer-settler experiments using uranium, plutonium, and a uranium/plutonium mixture to assess the formation of tributyl phosphate degradation products in solvent extraction (Reference M035).

- Tributyl phosphate/dodecane solutions containing various additives were contacted with sodium carbonate or nitric acid to understand the chemical behavior (Reference M035).

- Demonstrating the use of formohydroxamic acid as a replacement for acetohydroxamic acid in the Uranium Extraction process (Reference M035).

Waste Processing Technologies

Waste processing technologies primarily involved the development of waste treatment processes including:

- Evaluation of low temperature fusion for conversion of wastes to a solid sodium nitrate (Reference C065).

- Vitrification studies of high-level waste (HLW), TRU, and low-level wastes (References C031, D002, D015, D018, D020, D024, D025, D037, D091, M035).

- Nitric acid and metal-catalyzed oxidation of organic wastes (Reference D002).

- Testing of various organic and inorganic absorbents for the solidification and stabilization of liquid wastes (Reference M035).

- Separation (dissolution and precipitation) of lead from plutonium, and solidification of the lead hydroxide (Reference M035).

- Solubility testing of HLW supernate and sludge samples to confirm and develop a solubility model for SRS tank farm wastes (Reference M035).

Analytical Measurements Technologies

The SRNL performs various chemical and radiological analyses in support of SRS operations as well as activities within the SRNL. New or improved analytical techniques, including the use of robotics for process automation, are also developed (References C087, D001, D037, D082, M035). Sample preparation and analyses conducted and/or developed include:

Sample Preparation

- Dissolution (References M035, P027)
- Electrodeposition (Reference D067)
- Ion-exchange separation (References P012, P026, M035)
- Precipitation (References D067, P015, P020)
- Solvent extraction (References C021, D002, M035, P014)
- Sonication (Reference D002)
- Toxicity characteristic leaching procedure (References D002, M035)

Sample Analysis

- Alpha and gamma pulse-height analysis (References D020, D051, M035, P014)
- Alpha spectrometry (Reference D058)
- Atomic absorption spectrometry (References D002, D037, P025)
- Atomic absorption spectrophotometry (References C021, D051, P024)
- Coulometry (References D058, P013)
- Gamma spectrometry (Reference D058)
- Gas chromatography-mass spectrometry (GC-MS) (References C044, D002, D037, M035)
- Gross alpha counting (References D058, P014, P018)
- High-resolution gamma ray spectroscopy (References C017, D020)
- Inductively coupled plasma-emission spectrometry (References C021, D002, D037, M035)
- ICP mass spectrometry (References D002, D037)
- Infrared spectrophotometry and spectrometry (References C044, D037, M035)

- Ion chromatography (References D002, D024, D037)
- Isotope dilution mass spectrometry (References D024, D051)
- Laser-excited atomic fluorescence spectroscopy (References D024, D037)
- Liquid scintillation counting (References D067, M035, P015, P026)
- Pu (III) spectrophotometry (Reference D056)
- Scanning electron microscopy (References D002, D021, D037, M035)
- Spark-source mass spectrometry (Reference D020)
- Thermogravimetric analysis (References D021, M035)
- Titrations (References D002, M035, P016, P017, P019, P028)
- Total organic carbon analysis (References D002, M035)
- Ultraviolet-visible spectroscopy (Reference M035)
- X-ray absorption-edge densitometry (Reference D078)
- X-ray diffraction (References C004, C052, D002, D037, M035)
- X-ray fluorescence (References C012, D067, M035)

Materials Technologies

Studies involved general actinide properties and behavior. The following are examples of these studies:

- Analytical chemistry of neptunium (Reference D067)
- Bonding of actinide (IV) and actinide (III) ions (Reference D071)
- Crystal structure and thermal behavior of mixed actinide oxides (Reference D065)
- Chemical, physical, and nuclear properties of the transplutonium isotopes americium, curium, berkelium, californium, einsteinium, and fermium (References C063, C065, D011, D012)
- Evaluation of sand filtration on plutonium fluoride. Electrolysis of plutonium hexafluoride produces PuO_2F_2 (Reference C008)
- Examination and testing of Co-60 materials (References C070, D039)
- Mechanical, thermal, electrical, and magnetic properties of the transuranium elements plutonium, americium, neptunium, and curium (References D002, D066, D072, D073, D074)

- Oxidation states of americium, plutonium, neptunium, and curium (Reference D063)
- Resin calcinations for preparing transplutonium oxides and oxysulfates (Reference D040)
- Electrochemical behavior, electrodeposition and electrochemical separation of actinides (Reference M035).
- Precipitating pure actinides and mixtures of actinides to form a solid solution oxide by modifying the oxidation states of actinides in solution (Reference M035)
- Measuring distribution coefficients of actinide elements between aqueous and organic phases used in a solvent extraction process that preferentially extracts lanthanide elements from actinide elements (Reference M035).
- Fundamental studies into the solution chemistry of novel actinide complexes and nano-clusters focusing on the stability, reactivity, and electrochemistry of novel actinide compounds in aqueous and non-aqueous solutions (Reference M035).

Facility Support Operations

The following describes facility support operations, including renovations and decommissioning, and maintenance and utilities:

Renovation, Decontamination, and Decommissioning

Various renovation, decontamination, and decommissioning operations have occurred in the SRNL. Waste generated from these operations is packaged in drums and boxes. General operations consist of dismantling and decontamination of gloveboxes, cells, and equipment as well as fixing of contamination in gloveboxes or cell liners (References C022, C036, D002, D015, D032, D037, D050, D091, M035).

Maintenance and Utilities

During the years in which the SRNL has been in production, preventive and periodic maintenance were required which generated waste. Common operations include various repairs and modifications, filter changes, and glove changes (References D038, D091, M035, P003, P036, P037, P038, P043, P047).

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-W027-773A-HOM

Chemical/Compound	EPA HWN	Use	Reference
Arsenic	D004	Arsenazo III used as a color indicator. Atomic absorption analysis. Zirconium phenylarsonate used for co-precipitation.	C041, D067, P024
Barium	D005	Sample constituent. Barium chloride and barium sulfate used for sample precipitation.	D047, D067, P016
Cadmium	D006	Analytical development. Component of process solutions used for neutron absorption. Waste treatment technologies.	C041, C042, D051, D091, M006
Chromium	D007	Analytical development. Chromic acid for cleaning equipment. Contained in alpha plates. Dichromate solution used to clean glassware. Potassium dichromate solution used for titrations. Sample constituent. Sodium chromate used for actinide oxidation.	C041, C042, C053, D047, D067, D091, M006, M012, M013, P013, P017, P030
Lead	D008	Analytical development. Sample constituent. Leaded gloves, bricks. Waste treatment technologies.	C041, C042, C053, D047, D091, M006
Mercury	D009	Atomic absorption analysis. Analytical development. Density determination. Mercuric nitrate used as a catalyst in dissolution. Sample constituent. Thermometers. Waste treatment technologies.	C031, C041, C042, D021, D047, D057, D058, D091, M006, P024
Selenium	D010	Atomic absorption analysis. Analytical development.	C017, M007, P024
Silver	D011	Sample constituent. Silver catalyzed dissolver development. Silver nitrate used for chloride separation from laboratory solutions. Silver solder.	C041, C042, D047, D052, D057, D058, P030
Carbon tetrachloride	D019	Analytical standard. Color complex formation.	C041, C044, D067
Chloroform	D022	Californium purification process. Analytical development. Analytical standard.	C023, C024, C025, C042, C044, M006, P030
1,4-Dichlorobenzene	D027	Chemical used in SRNL.	M015
1,2-Dichloroethane	D028	Chemical used in SRNL.	M014, M015
1,1-Dichloroethylene	D029	Chemical used in SRNL.	M015
Vinyl chloride	D043	Chemical used in SRNL.	M015
Chlorobenzene	F002	Analytical standard.	C044
Ortho-Dichlorobenzene	F002	Chemical used in SRNL.	M015
Methylene chloride	F002	Analytical standard.	C044
Tetrachloroethylene	F002	Degreasing. Laser spectroscopy.	C041, D037
1,1,1-Trichloroethane	F002	Component of Magnaflux cleaner.	C041, C048

Chemical/Compound	EPA HWN	Use	Reference
1,1,2-Trichloroethane	F002	Chemical used in SRNL.	M015
Trichloroethylene	F002	Cleaning and degreasing. Small concentrations in low activity drain (LAD) waste water tanks. Laser spectroscopy.	C041, D031, D037, P030
1,1,2-Trichloro-1,2,2-trifluoroethane	F002	Decontamination.	C036
Nitrobenzene	F004	Constituent in tetraphenylboron salt.	C018
Benzene	F005	Study of cesium removal from tetraphenylboron salts. Analytical standard. Small concentrations measured in waste water from LAD tanks. Gas chromatography. Dissolving actinide compounds.	C014, C018, C041, C044, C045, D031, D037, D071, P025
Carbon disulfide	F005	Chemical used in SRNL.	D002
Methyl ethyl ketone	F005	Chemical used in SRNL.	M014, M015
2-Nitropropane	F005	Chemical used in SRNL.	M014
Pyridine	F005	Chemical used in SRNL.	M014, M015, M016
Toluene	F005	Analytical development. Cleaning cell windows. Solvent extraction.	C041, C042, D091, M006, M007, P038

RCRA Determinations

Historical Waste Management

The SRNL waste has historically been managed in accordance with the generator site requirements and in compliance with the requirements of the South Carolina Department of Health and Environmental Control. Based on historical waste management, the containers in this waste stream were managed as non-hazardous or hazardous with additional toxicity characteristic and listed codes. A review of available AK documentation has determined that this waste is hazardous; however, the additional hazardous waste numbers do not apply to this waste stream (i.e., D001, D003, D018, D023, D024, D025, D026, F001, F003, P012, P015, P048, P113, P120, U002, U032, U052, U080, U133, U134, U144, U151, U154, U161, U209, U211, U220, U226, and U239 are not applied to this waste stream). Therefore, the hazardous waste numbers summarized below will be assigned to the containers in this waste stream (References D152, DR001).

Environmental Protection Agency (EPA) hazardous waste numbers were assigned to waste stream SR-W027-773A-HOM based on a review of available AK documentation to identify chemical usage and hazardous materials that have been introduced into the waste stream. The containers in this waste stream were originally characterized by SRS as belonging to waste stream SR-W027-773A-HET because they were mixed with debris from that waste stream. It is, therefore, assumed that the hazardous constituents present in waste stream SR-W027-773A-HET are also present in waste stream SR-W027-773A-HOM.

As described below, EPA hazardous waste number F003 is not assigned to homogeneous waste stream SR-W027-773A-HOM, but F003 was assigned to debris waste stream SR-W027-773A-HET. The F003 listing only applies to wastes that exhibit the characteristic of ignitability, and neither of these waste streams are ignitable. However, when the WSPF for the debris

waste stream was issued back in 2005, the F003 listing was conservatively assigned to non-ignitable wastes at SRS. In accordance with RCRA, EPA hazardous waste number F003 is no longer assigned to non-ignitable wastes at SRS.

AK was collected from a variety of sources, including standard operating procedures, chemical inventories, and interviews. The Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-773A-HOM table summarizes the hazardous chemical contaminants and associated EPA hazardous waste numbers applicable to the waste stream (References DR001, DR003, M027).

Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

Ignitability

The homogeneous materials in waste stream SR-W027-773A-HOM do not meet the definition of ignitability as defined in 40 Code of Federal Regulations (CFR) 261.21. The material 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. Containers are drained before disposal, and absorbent is added to drums containing liquids in order to ensure that the waste does not exceed WIPP-WAP requirements (References P006, P031, P032, P033, P034, P046). Organic liquids miscible with water (e.g., alcohols) are disposed down the drain and would not be in the waste stream (References C053, C055, C059, D002, D106, P005, P008, P010, P022, P038, P046). Radiography and/or visual examination are performed to ensure liquids do not exceed the amount allowed by the WIPP-WAP. Any drum identified with liquids in excess of the amount allowed by the WIPP-WAP will be segregated from the waste stream during characterization activities and will not be eligible for disposal at WIPP until further characterization and/or processing is conducted.

Ignitable compressed gases (e.g., un-vented aerosol cans) have not been specifically identified on waste disposal forms for SRNL TRU waste (References M001, M002, M003). Aerosol cans have been prohibited from use inside gloveboxes and cells since at least 1975, but there have been documented exceptions (References C010, C055, C060). Procedures also prohibit the disposal of un-vented compressed gas cylinders and aerosol cans (References P006, P031, P032, P033, P034, P035, P046). Generator interviews also indicated that if aerosol cans were in TRU waste, they would be punctured (References C052, C053, C055, C056, C057, C059, C060). Radiography and/or visual examination are performed to ensure the absence of ignitable compressed gases. Any container identified with unpunctured aerosol cans will be segregated from the waste stream during characterization activities and will not be eligible for disposal at WIPP until the cans are either punctured or removed from the waste stream. Numerous oxidizing compounds (i.e., chlorates, chromates, dichromates, hypochlorites, nitrates, nitrites, perchlorates, permanganates, peroxides, and persulfates) are used in the SRNL (References C054, D037, M014, M015, M016, P021). Oxidizers are treated (e.g., sodium nitrite was added to permanganates) and then disposed down the drain and would not be in the waste stream (References C053, C055, C056, C060, P017). 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 D124).

Ignitable solids identified in the SRNL include aluminum powder, zirconium hydride, and cerium, magnesium, and sodium metals (References C053, C054, M014, M015, M016, M027). Pyrophorics are prohibited from disposal in solid waste. These materials are rendered non-pyrophoric before being disposed. This may be accomplished by converting the material to a solid salt form or an aqueous liquid salt solution. The salt in solid form may be disposed as TRU waste, but the aqueous salt solutions are disposed down the drain and would not be in the waste stream (References C042, C053, P006, P008, P031, P032, P033, P034, P035). Acid spills are cleaned up with absorbent pads or wipes. The absorbed material is generally neutralized with sodium hydroxide or sodium bicarbonate or is thoroughly rinsed with water (References C053, C055, C056, C057, C059, C060, P031, P033). Waste stream SR-W027-773A-HOM is therefore not ignitable (EPA hazardous waste number D001).

Corrosivity

The materials in waste stream SR-W027-773A-HOM 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 the SRNL include acids (e.g., nitric, hydrochloric, hydrofluoric, perchloric) and caustics (e.g., sodium hydroxide, ammonium hydroxide) (References C054, D002, D037, D067, M014, M015, M016). These materials are generally neutralized and disposed down the drain (References C042, C053, C055, C056, C057, C060, D002, D106, P005, P008, P010, P017, P022, P025, P038). Before being disposed down the drain, chlorides and fluorides are complexed with aluminum nitrate (References C056, C059, P019). Containers are drained before disposal, and any residual liquid is absorbed (References P006, P031, P032, P033, P034, P046, P048, P049). Radiography and/or visual examination are performed to ensure liquids do not exceed the amount identified in the WIPP-WAP. Any drum identified with liquids in excess of the amount allowed in the WIPP-WAP will be segregated from the waste stream during characterization activities and will not be eligible for disposal at WIPP until further characterization and/or processing is conducted. Materials disposed of down the drain system would not be present in this waste stream. Waste stream SR-W027-773A-HOM is therefore not corrosive (EPA hazardous waste number D002).

Reactivity

The materials in waste stream SR-W027-773A-HOM 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. Reactive metals used in the SRNL include calcium, lithium, sodium hydride, and zinc powder (References C053, C054, M014, M015, M016). Reactive metals are prohibited from disposal in solid waste. These materials are rendered non-reactive (e.g., using alcohol and water) and then disposed down the drain (References C019, C053, P008, P032, P034, P035). Cyanide and sulfide compounds are used but the solutions were disposed down the drain (References C053, C054, M014, M015, M016, M027). Procedures prohibit the disposal of explosives (References P031, P032, P033, P034). Organic resins are washed with sodium sulfate (sodium hydroxide was also used at one time) and dried so they are not in the nitrated form when disposed (References C042, C053, C055, C056, C059, D044, P035). Potentially explosive solutions (e.g., hydrazine) are used in the SRNL. These solutions are neutralized and then disposed down the drain and would not be in the waste stream (References C041, C055, P041, P042). Materials disposed of down the drain system would not be present in this waste stream. Waste stream SR-W027-773A-HOM is therefore not reactive (EPA hazardous waste number D003).

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

Toxicity Characteristic

Numerous toxicity characteristic metals and metal compounds are used in the SRNL. The metals and their uses or presence are provided in the Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-773A-HOM table (References DR001, DR003, M027).

Homogeneous waste from the SRNL contains or is contaminated with toxicity characteristic metal compounds listed in 40 CFR 261.24. Based on the references identified in Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-773A-HOM table, EPA hazardous waste numbers D004 – D011 are assigned to waste stream SR-W027-773A-HOM (References DR001, DR003).

Several toxicity characteristic organic compounds are used in the SRNL. The organics and their uses are provided in the Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-773A-HOM table (References DR001, DR003, M027).

Homogeneous waste from the SRNL contains or is contaminated with toxicity characteristic organic compounds listed in 40 CFR 261.24. Based on the references identified in the Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-773A-HOM table, EPA hazardous waste numbers D019, D022, D027 – D029, and D043 are assigned to waste stream SR-W027-773A-HOM (References DR001, DR003).

Chemical inventories identify the pesticides Endrin; Lindane; Methoxychlor; Toxaphene; 2, 4-D; 2, 4, 5-TP; Chlordane; and Heptachlor in Lab B-119, and in a cabinet in the B-196 corridor outside the labs (References C054, M014, M015). In Lab B-119, radioactive and nonradioactive samples were analyzed for organics (Reference D002). According to generator interviews, there was a GC-MS unit on the bench top in Lab B-119 for four years in the 1990s. Pesticides were analyzed, but this unit was used only on nonradioactive samples. Pesticides are also analyzed in Lab B-123, but on nonradioactive samples only. These operations would not have generated TRU waste (Reference C071). Therefore, waste stream SR-W027-773A-HOM does not exhibit the characteristic of toxicity for pesticides (EPA hazardous waste number D012 – D017, D020, and D031).

Chemical inventories identify the semivolatile organics o-Cresol; m-Cresol; p-Cresol; Hexachlorobenzene; Pentachlorophenol; and 2,4,5 Trichlorophenol in Labs B-119 and B-123 (References C054, M015). In Lab B-123, radioactive and nonradioactive samples were analyzed for semi-volatile organics (Reference D002). According to generator interviews, the analysis was not done on TRU samples. Samples were either nonradioactive or were contaminated with very low levels of radioactivity. No TRU waste would have been generated from this analysis (Reference C071). Therefore, waste stream SR-W027-773A-HOM does not exhibit the characteristic of toxicity for semi-volatile organics (EPA hazardous waste numbers D023 – D026, D030, D032 – D034, D037, D041, and D042).

Listed Waste

F-Listed Waste

Numerous F-listed solvents are used in the SRNL. The F-listed solvents and their uses, if known, are provided in the Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-773A-HOM table (References DR001, DR003, M027).

Homogeneous waste from the SRNL is mixed with hazardous wastes from non-specific sources listed in 40 CFR 261.31. Based on the references identified in the Toxicity Characteristic and Listed Constituents in Waste Stream SR-W027-773A-HOM table, EPA hazardous waste numbers F002, F004, and F005 are assigned to waste stream SR W027-773A-HOM (References DR001, DR003).

As previously stated, the containers in this waste stream originated from debris waste stream SR-W027-773A-HET. SR-W027-773A-HET identifies F003 listed solvents including acetone, n-butyl alcohol, cyclohexanone, ethyl acetate, ethyl benzene, ethyl ether, methanol, methyl isobutyl ketone, and xylene. However, this waste will not exhibit the characteristic of ignitability because it is not in liquid form. Therefore, hazardous waste number F003 will not be assigned to this waste stream (References DR001, DR003).

Several of the F-listed solvents in the table (i.e., ortho-dichlorobenzene, 1,1,2-trichloroethane, carbon disulfide, methyl ethyl ketone, and 2-nitropropane) were identified in the SRNL chemical inventories; however, review of other documentation did not identify their specific use. Analytical and R&D operations commonly use organic liquids for their solvent properties (i.e., to dissolve or mobilize other constituents) therefore, it is assumed that these compounds were used as solvents (References M014, M015).

Although several F001-listed solvents were used in the SRNL, 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. The SRNL did not conduct large-scale degreasing operations; therefore, EPA hazardous waste number F001 will not be assigned to this waste stream (References DR001, DR003).

K-Listed Waste

Waste stream SR-W027-773A-HOM does not contain hazardous waste from the specific sources in 40 CFR 261.32 and therefore is not a K-listed waste.

P- and U-Listed Waste

Waste stream SR-W027-773A-HOM 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.

Numerous U- and P-listed chemicals were identified in the SRNL including beryllium powder (P015) and hydrofluoric acid (U134). However, no pure product or unused waste chemicals would have been placed into the TRU waste stream (References C041, C046, M014, M015, M027). Chemical solutions were typically made up outside the glovebox; pure chemicals were not generally brought into the glovebox (References C053, C056, C059, C060, D037). In

addition, vials and containers that contain liquid waste are drained, rinsed with water, and drained again before disposal (Reference C042). Therefore, waste stream SR-W027-773A-HOM is not a U- or P-listed waste (References DR001, DR003).

Beryllium is present in the waste stream but not in the form of beryllium powder, and therefore, the waste does not meet the definition of a P015-listed waste (References C034, C052, C053, C059, D043, P032).

Polychlorinated Biphenyls

Waste stream SR-W027-773A-HOM is not expected to contain PCBs greater than 50 ppm, and therefore is not regulated as a Toxic Substance Control Act waste under 40 CFR 761.

Disposal of TRU waste containing PCBs in concentrations greater than 50 ppm was prohibited by procedure until 2009. Since then, TRU waste procedures have allowed solid PCBs in TRU waste, but PCB liquids are prohibited (Reference P006, P032, P034, P035).

Fluorescent light fixtures (which would include ballasts) are mounted outside of gloveboxes, radiobenches, and hoods and therefore would not be in TRU waste (References C052, C055, C056, D037). High pressure sodium vapor lights are mounted inside the shielded cells (E-wing) but because most of the shielded cell work does not produce TRU waste, the fixtures (which would include ballasts) would not be in TRU waste (Reference C057). If ballasts are discovered during radiography or visual examination, they will be removed. The main transformers that supply electrical power to the SRNL are located outside the building. PCBs are no longer used in electrical equipment but according to a 1998 Safety Analysis Report, one power transformer still contains PCBs (Reference D037). Equipment containing PCB oils would not be inside gloveboxes (References C059, C060). Samples are analyzed for PCB content in Lab B-123; however, TRU PCB waste is not generated by this analysis (Reference C071).

Small capacitors in electric motors or other potential PCB-containing items such as pumps found in payload containers during radiography or visual examination will be managed as PCB wastes in accordance with the CCP TRU Waste Certification Program.

Prohibited Items

Based on the review of container documentation and documented waste management practices, no prohibited items are specifically identified in the waste stream. However, this waste stream includes solidified aqueous/organic waste and the presence of liquids due to dewatering is possible (References M003, M044, C081).

This waste stream contains debris; therefore, the potential for containerized liquid also exists. Aerosol cans have been prohibited from use inside gloveboxes and cells since at least 1975, but there have been documented exceptions (References C010, C055, C060). A generator who has worked in the SRNL Shielded Cell facility since 1983 indicated that if aerosol cans were in TRU waste, they would be punctured (Reference C057). Another generator who worked in B-wing, C-wing, and F-wing since 1987 did not use aerosol cans inside the glovebox but said there was a requirement to puncture them (Reference C055). The requirement to vent/ puncture compressed gas cylinders and aerosol cans was identified in procedures since 1988 (References P006, P031, P032, P033, P034, P035, P046). Ignitable compressed gases (e.g., un-vented aerosol cans) have not been specifically identified on waste disposal forms for SRNL TRU waste (References M001, M002, M003). The AK documentation reviewed would seem to

indicate that TRU waste will not typically contain compressed gas cylinders or aerosol cans, but there was no requirement to vent/puncture them until the 1980s. Therefore, TRU waste potentially contains un-vented gas cylinders or aerosol cans.

Drums containing prohibited waste items identified during characterization activities will be segregated then treated and/or repackaged to remove the items prior to certification and shipment.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameter data is not available for any of the three drums in this waste stream, but the generation of the homogeneous waste is very similar to that described for the 221F area in 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, SRW026-221F-HET-A*, because much of the homogeneous waste in that report was also originally generated as debris. Therefore, the waste material parameters for waste stream SR-W027-773A-HOM were estimated based upon the approach taken in SRS waste stream SR-W026-221F-HOM.

In addition to the absorbed wastes that make up the majority of waste stream SR-W026-221F-HOM, there are numerous debris materials in these drums. Based on 29-90 and TWPD forms, SRS operating procedures, and RTR and VE data, the debris may include plastic, rubber, cloth, paper, and metal. The RTR and VE data sheets categorized the absorbed waste as "other inorganic material." However, since absorbed waste is considered a homogeneous solid, "inorganic matrix" and "organic matrix" are more appropriate. For the estimates in the table below, absorbed aqueous waste was assigned to "inorganic matrix" and absorbed hydraulic fluid was assigned to "organic matrix." During the VE process, some drums contained residual liquids which were absorbed with an organic polymer absorbent. For the drums containing absorbed aqueous waste, the organic polymer was assigned to "organic matrix" based on the VE data sheet.

Waste Stream SR-W027-773A-HOM Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percent Range
Iron-based Metal/Alloys	0.4%	0 – 10.0%
Aluminum-based Metal/Alloys	<0.1%	0 – 0.3%
Other Metals	0.0%	0 – 0.0%
Other Inorganic Materials	0.0%	0 – 0.0%
Cellulosics	1.9%	0 – 10.5%
Rubber	0.6%	0 – 5.8%
Plastics (waste materials)	6.0%	0 – 27.3%
Organic Matrix	66.5%	0 – 100.0%
Inorganic Matrix	24.6%	0 – 99.3%
Soils/Gravel	0.0%	0 – 0.0%

List of Any 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 (References C077, D128, M029).

Radionuclide Information

To determine isotopic ratios for waste stream SR-W027-773A-HOM, radiological data for each of the containers were evaluated. 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 wt% range for individual drums, the radiological mass in each drum in the waste stream was summed. The mass of each individual radionuclide in a drum was divided by the total radiological mass for that drum and converted to a percentage. As shown in the Waste Stream SR-W027-773A-HOM Radiological Characterization table, Pu-238 is the most predominant radionuclide by mass and Pu-239 is the second most predominant radionuclide by mass.

Waste Stream SR-W027-773A-HOM Radiological Characterization

Radionuclide	Total Radionuclide Wt%[1]	Total Radionuclide Ci%[2,5]	Radionuclide Wt% Range for Individual Containers[3]	Radionuclide Ci% Range for Individual Containers[4]	Suspected Present (Yes/No)
Am-241	Not Reported				Yes
Pu-238	72.59%	97.26%	0.20% - 74.93%	4.72% - 97.43%	Yes
Pu-239	24.24%	0.12%	22.01% - 93.17%	0.10% - 7.90%	Yes
Pu-240	2.70%	0.05%	2.59% - 5.94%	0.05% - 1.87%	Yes
Pu-242	0.15%	Trace	0.06% - 0.15%	Trace – Trace	Yes
U-233	Not Reported				Yes
U-234	Not Reported				Yes
U-238	Not Reported				Yes
Sr-90	Not Reported				Yes
Cs-137	Not Reported				Yes
Additional Radionuclides					
Pu-241	0.33%	2.57%	0.32% - 0.63%	2.42% - 85.51%	Yes

1 This listing indicates the total wt% of each radionuclide over the entire waste stream.
2 This listing indicates the total activity Ci% of each radionuclide over the entire waste stream.
3 This listing is the wt% range of each radionuclide on a container-by-container basis. Some containers with "0" listed as the lower range, will not contain the specified radionuclide.
4 This listing is the Ci% range of each radionuclide on a container-by-container basis.
5 "Trace" indicates <0.01 Wt% for that radionuclide.

Payload management will not be utilized for this waste stream.

Source Documents

Source Document Number	Title
C002	Plutonium in Fab Lab
C003	DWPF Canister Fill Level Detector Cf-252 Source Replacement Radiation Dose Rates (U)
C004	SRL Nuclear Materials Division Special Hazards Investigation No. 285
C008	Safety Assessment of the Separations Engineering Sand Filter Efficiency Experiment at SRL
C010	Request for Deviation from SRP Safety Manual Item 89 for the CSEM Facility, Room C-131, 773-A
C012	Handling Mark 41 Outer Target Tubes in Fabrication Laboratory
C013	Milliwatt Generator (MWG) Meeting at SR - February 15 & 16, 1978
C014	Request for Approval to Handle Benzene
C017	Development Status of SRL - Contracted Radionuclide Procedures at Rockwell-Hanford
C018	SRL Support of Salt Decontamination Demonstration
C019	Savannah River Laboratory Actinide Technology Division Process Incident Report No. PI-ATD-83-1
C021	Determination of Trace Impurities in Uranium by Atomic Spectroscopic Methods
C022	Fixing Contamination in SRL Californium Cells
C023	Californium-252 Waste on TRU Pads - Reassignment to LLW and Disposal
C024	Californium-252 Waste on TRU Pads - Removal of Solvent Codes
C025	Disposition of Solvents in Processing of Californium
C027	SRL Quality Assurance Description
C029	NEPA Recommendation Plutonium Hydrofluorination Development Facility SRL
C030	SRL R&D Effort for Processing SEFOR and Fermi Fuels
C031	Processing of Tank 15 Sludge
C032	Final Unusual Occurrence Report (UOR) SRS-90-SRL-03
C034	Air Sampling During Beryllium Bar Removal in 773-A, 7/1/99
C036	SRL Decontamination Technology Program (U)
C040	For 773-A AK, Re: Dried Sludge
C041	Applicability of RCRA Waste Codes to TRU Waste Generated in 773-A
C042	Project S-2991, Transuranic (TRU) Waste Facility Waste Characterization and Burial Container Criticality Limits
C043	Dissolution of LANL DOR Plutonium Metal
C044	Request for Approval to Handle Carcinogenic Chemical Standards (U)
C045	Request for Approval to Handle Benzene
C046	FW: Codes to be added to WIPP Permit
C047	HLW in casks
C048	Program for the Handling of Hazardous Waste Rags and Wipes
C049	Requirements for Packaging Transuranium Waste
C052	Interview Regarding TRU Waste Operations in Building 773-A with David

Source Document Number	Title
	Missimer and Ronny Rutherford
C053	Interview Regarding TRU Waste Operations in Building 773-A with David Karraker
C054	Interview Regarding Chemicals in Building 773-A with Marie Frazer
C055	Interview Regarding TRU Waste Operations in Building 773-A with Eddie Kyser and Kevin Kalbaugh
C056	Interview Regarding TRU Waste operations in Building 773-A with John Gray
C057	Interview Regarding TRU Waste Operations in Building 773-A Shielded Cell Facility with Ronald Blessing and Sallie (Jane) Howard
C058	Interview Regarding TRU Waste Operations in Building 773-A Shielded Cell Facility with David Keel
C059	Interview Regarding TRU Waste Operations in Building 773-A with Kathy Klapper, Bridget Miller, Beverly Wall, and Patrick Westover
C060	Interview Regarding TRU Waste Operations in Building 773-A with Bill Wilson
C061	Interview Regarding TRU Waste Assay and Packaging in Building 773-A with Veronica Shaw
C062	Mark 61 Target Fabrication on Process Description for Initial Production
C063	Memo by R. G. Baxter providing discussion of the possible availability and uses of by-production transplutonium nuclides from the SR CA programs
C064	Recycle of 252 Cf Intermediates
C065	SRL Digest 1970
C066	SRL Digest 1971
C067	SRL Digest 1972 January - November (UCNI)
C068	High Level Caves, Monthly Report, Dec. 21 1967 - January 20, 1968
C069	HLC, Monthly Report, 12/21/69 - 1/20/70
C070	HLC, Monthly Report, 1/21/71 - 2/20/71
C071	Interview Regarding Pesticide and Semi-Volatile Organic Standards in Building 773-A With Steve Crump and Tom White
C072	Isotopic Content of TRU Streams Containing Different Contamination Variety Identifications
C073	E-mail Correspondence from Marie Frazer to Jeff Harrison
C075	E-mail from Joe D'Amelio on Requested Information
C076	Record of Communication from Mark Doherty Re: SRS-AK-4 SRNL Organic Waste Issues
C077	Correspondence from Kerri Crawford to Frances Alston re: STAR Item Response - Contact Be Waste
C078	Evaluation of Volume, Period of Generation, and Calculation of Individual and Total Radionuclide Masses and Activities for Waste Stream SR-W027-773A-HET
C079	Memo from R. C. Hochel re: TRU Boxed Waste Measurement Task Team Meeting Minutes 6/23/89
C081	Evaluation of Volume, Period of Generation, and Calculation of Individual and Total Radionuclide Masses and Activities for Waste Stream SR-W027-773A-HOM
C083	E-mail correspondence from Jeff Lunsford to Jim Schoen.
C085	Email from Jeff Lunsford to Mike Papp

Source Document Number	Title
C086	Email from Jeff Lunsford to Jeff Harrison Re: SRS-7 and "Ice Cream" Cartons: Follow-Up to the Ann Gibbs Interview
C087	Addition of 2 Containers to Waste Stream SR-W027-773A-HET
C089	SED Traps in Solid Waste
D001	Savannah River Technology Center (SRTC) Monthly Reports
D002	SRTC Technical Area Safety Analysis Report
D003	252Cf: Large Scale Production, Separation, and Applications
D005	Californium-252 Review 1971-1972
D006	Californium-252 Progress
D007	Criticality Control Procedure - Disposal of Fissionable Material to the Radioactive Waste Systems
D008	Isotope Separation Processes
D009	252Cf Encapsulation and Shipping at SRL
D010	Californium-252 Progress
D011	Purification of ^{244}Cm and ^{250}Cf-^{252}Cf for Radiation Property Measurements
D012	Radiation Properties of Californium-252
D013	Californium-252 Encapsulation at the Savannah River Laboratory
D015	Radiation Control - Environmental Effects Division, Savannah River Laboratory (Monthly Report)
D018	Savannah River Laboratory Quarterly Report(s), 1974
D019	Safety Analysis - Savannah River Laboratory Technical Area (UCNI)
D020	Savannah River Laboratory Quarterly Report(s), Waste Management (1975)
D021	Savannah River Laboratory Monthly Report(s), ^{238}Pu Fuel Form Processes
D024	Steering Committee - SRL Defense Waste Management Program Review
D025	Program Review - SRL Defense Waste Management
D031	Characterization of High and Low Activity Liquid Waste from 773-A
D032	Quality Assurance Assessment of Project S-3987
D034	Californium-252 Progress
D035	Californium-252 Progress
D036	Californium-252 Progress
D037	Safety Analysis Savannah River Laboratory Technical Area
D038	Process Hazards Review of the 904-A Trench (U)
D039	Savannah River Laboratory Cobalt-60 Power and Heat Sources, Quarterly Progress Report
D040	Development of a Plant-Scale Resin Calcination System for Preparing Transplutonium Oxides or Oxysulfates
D043	Recovery of Plutonium-238 from Scrap Materials
D044	Separation of ^{238}Pu from ^{237}Np by Pressurized Anion Exchange
D045	Processing of ^{238}Pu and ^{237}Np with Macroporous Anion Exchange Resin
D047	Sampling and Analyses of SRP High-Level Waste Sludges
D049	Recovery of Americium-241 from Aged Plutonium
D050	Decontamination of TRU Glove Boxes

Source Document Number	Title
D051	Determination of Cadmium in Solutions Containing Uranium, Neptunium, and Plutonium
D052	Cation Exchange Process for Recovery of Plutonium from Laboratory Solutions Containing Chloride
D053	Dissolution of Plutonium Metal in Sulfamic Acid at Elevated Temperatures
D054	Isolating 241 Am from Waste Solutions Container Al, Ca, Fe, and Cr
D056	Analysis of Special Recovery Samples by Pu (III) Spectrophotometry
D057	Reclamation of Plutonium from Pyrochemical Processing Residues
D058	Recovery of Plutonium from Electrorefining Anode Heels at Savannah River
D059	Separation of ^{241}Am from Calcium and Lead Using Masking and Multiple Oxalate Precipitation Techniques
D060	Critical Experiments with Highly Burned-Up Plutonium in D_20
D061	Production of the Transplutonium Elements at Savannah River
D062	Savannah River Experience with Transplutonium Elements
D063	A Test for Oxidation of Actinides in Concentrated CsF Solutions
D065	Studies of Mixed Actinide Oxides: Am y Cm 1-y 0 x and Pu y Cm 1-y 0 x
D066	Physical Properties of Aqueous Solutions of the Transuranium Elements
D067	Analytical Chemistry of Neptunium
D068	Plutonium-238, Power in a Small Package
D069	Preparation of the Transuranium Nuclides
D070	Anion Exchange Separation of ^{238}Pu and ^{237}Np Using Macroporous Anion Exchange Resin
D071	Neptunium and Plutonium
D072	Thermal Conductivity of ^{238}Pu02 Powder, Intermediates, and Dense Fuel Forms
D073	Preparation, Microstructures, and Properties of PuO_2
D074	Effect of Oxalate Precipitation on PuO_2 Microstructures
D077	Savannah River Laboratory Technical Progress Report Converter Fuel Cycle Technology July - September 1978
D078	Savannah River Laboratory Technical Progress Report, Consolidated Fuel Reprocessing Program
D079	^{252}Cf Encapsulation and Shipping at SRL
D082	Laboratory Robotics Systems at the Savannah River Laboratory
D084	SRL Laboratory-Scale Fuel Reprocessing Facility
D091	773-A Waste Characterization Plan (U)
D102	SRTC Monthly Report 2000 January thru April and June thru November
D106	Process Hazards Review of the Liquid Waste Collection System, 776-A
D110	Storage of Solid Radioactive Waste
D113	Plutonium Vulnerability Study Site Assessment Report
D117	Isolation of Transplutonium Elements
D119	Monthly Report 01/1984 Occupational Health Protection Laboratory Operations Section Savannah River Laboratory
D121	E-Area, TRU Pads Transuranic Waste Acceptance Criteria

Source Document Number	Title
D122	Citation Determination and Evaluation of Waste Incidental to Reprocessing
D124	Separations Monthly Report for August 1984
D125	Savannah River Laboratory History Nuclear Reactor Technology
D126	Savannah River Laboratory History Defense Waste Management
D127	Savannah River Laboratory History General
D128	SRTC/TNX Waste Certification Plan
D129	SRTC Transuranic (TRU) Waste Characterization Plan
D132	ILC-2 Process Hazards Review
D133	History of the Savannah River Laboratory Volumes 1, 2, 3, 6, 9, 11, 13 (UCNI)
D143	Savannah River Laboratory History, Chemical Processes, January 1984 - December 1988
D152	TWBIR UPDATE 2004 for Compliance Recertification Application 2004.
D156	Waste Incidental to Reprocessing Citation Determination
D157	Annual Report Washington Savannah River Company 2005
D158	Washington Savannah River Company 2006 Annual Report
D159	2009 Savannah River Nuclear Solutions, LLC Annual Report
D160	Westinghouse Savannah River Company Annual Report 2004
DR001	AK Source Document Discrepancy Resolution, Waste Stream SR-W027-773A-HET, Heterogeneous Debris Waste from Building 773-A
DR003	Acceptable Knowledge Source Document Discrepancy Resolution, Waste Stream SR W027-773A-HOM Historical and Current RCRA Characterization and Assignment of EPA Hazardous Waste Numbers
M001	Burial Ground Records, TWPD forms, and 29-90 forms
M002	Container Paperwork
M003	Go West Database
M006	Process Flow Diagrams
M007	Analysis Performed/Chemicals used (pages from lab notebook)
M008	Request/Approval for Deviation to SRS Waste Acceptance Criteria Manual
M009	Request/Approval For Deviation to SRS Waste Acceptance Criteria Manual
M010	High-Efficiency Particulate Air (HEPA) Filter, Fire-Resistant
M011	High-Efficiency Particulate Air (HEPA) Filter, Fire-Resistant (250 degrees min), Cylindrical
M012	Test Method C1204-91 (1996) Standard Test Method for Uranium in the Presence of Plutonium by Iron (II) Reduction in Phosphoric Acid Followed by Chromium (VI) Titration
M013	Test Method C1267-00 Standard Test Method for Uranium by Iron (II) Reduction in Phosphoric Acid Followed by Chromium (VI) Titration in the Presence of Vanadium
M014	Savannah River Site Chemical Inventory
M015	CIIS Inventory Downloaded 3/20/97 (from 1996 Inventory)
M016	Chemicals Received for Disposal (from SRTC) 1999-2002
M017	Specifications For TRU Waste Drums/TRU Waste Drum Filter Vent Specification

Source Document Number	Title
M018	Savannah River Site ATLAS Including Off Site Locations and Building Index
M019	Procurement Specification for 90 Mil Polyethylene Drum Liner/Lid
M020	Procurement Specification for 55 Gallon Painted Steel Drum
M021	Procurement Specification for 3/4 Inch Diameter Drum Filter Vents
M022	773A 29-90 WMP calculations
M023	773A TWDP Vol% calculations
M024	Radiological Evaluation for 773-A
M025	Memo: Evaluation of the Radiological Characterization of Waste Stream SR-W027-773A-HET
M027	Building 773-A Chemical Review Summary
M029	Acceptable Knowledge Beryllium Assessment for CCP-SRS AK Reports 1 through 7
M030	Email from Jeff Lunsford dated 8/31/2005. SRS Inventory Update
M031	Evaluation of Additional Containers for SRS-7 Waste Stream SR-W027-773A-HET
M032	BGRs and 29-90 Forms for Drums Added on 08/09/2006
M033	Evaluation of 10 Additional Containers for SRS-7 Waste Stream SR-W027-773A-HET
M034	BGRs, TWPDs, and SRS Quick Scan Data Sheets for 10 Drums added to HET Waste Stream on 01/04/2008
M035	Environmental Evaluation Checklists
M036	Evaluation of Additional Containers for SRS-7 Waste Stream SR-W027-773A-HET
M037	Transuranic Waste Container Characterization Forms
M038	la Calhene DPTE Transfer System Documentation
M039	Evaluation of Additional Containers for SRS-7 Waste Stream SR-W027-773A-HET
M041	Calculation Packages
M044	BGR Forms for SR-W027-773A-HOM Containers
M045	BGR/TWPD/29-90 Forms for Boxes added to SR-W027-773A-HET
M046	Evaluation of Additional Containers for Waste Stream SR-W027-773A-HET
M047	Transuranic Waste Container Characterization Forms (OSR 29-90) for 12/14/11 Drum Additions
M048	Evaluation of Boxed Waste from Building 776-A for Waste Stream SR-W027-773A-HET
M050	Evaluation of Additional Containers for SRS-7 Waste Stream SR-W027-773A-HET
M051	TRU Waste Container Characterization Forms (OSR 29-90) for Drum Additions to Waste Stream SR-W027-773A-HET
M055	Evaluation of Additional Containers for Waste Stream SR-W027-773A-HET/BGRs
M059	Evaluation of Radiological AK Data for Waste Stream SR-W027-773A-HET
P001	Savannah River Plant, Management of Solid Radioactive Waste/Radiation and Contamination Control Includes DPSOP 40: Burial Container Limits

Source Document Number	Title
P003	Operating Procedures for Plutonium Glove Box Facility (PuGBF)
P004	Revised P/M Operating Procedures (Fab Lab)
P005	Technical Standards Master Copy
P006	Savannah River National Laboratory Transuranic Waste Procedure
P008	Waste Handling
P009	Decontamination of Building and Equipment
P010	Radioactive Waste Disposal-SRL
P011	Procedure for Processing Waste Through the Transuranic Waste Monitor
P012	Separation of Trace Plutonium from Uranium for Subsequent Analysis
P013	Plutonium: Coulometric Method
P014	Plutonium TTA Extraction and Alpha Analysis
P015	Strontium Precipitation Preparation for Liquid Scintillation Counting
P016	Automatic Determination of Hydroxide, Aluminate, and Carbonate in Alkaline Solutions of Nuclear Waste
P017	Determination of Uranium by Davies-Gray Titration, Automatic Titration Method
P018	Gross Alpha Activity (Direct Mount)
P019	Sodium Bicarbonate Determination
P020	Cesium Removal by Precipitation
P021	Storage of Strong Oxidizing Agents in Plastic Containers (U)
P022	ADS Radiologically Controlled Area (RCA) Rules and Work Practices (U)
P024	Procedure for Hydride Generation/Atomic Absorption (U)
P025	Destruction of ITP Sample Residue by Permanganate Oxidation Operating Procedure and Waste Analysis Plan (U)
P026	Tritium in High Activity Solutions by Liquid Scintillation
P027	Aqua Regia Dissolution of Sludge for Elemental Analysis (u)
P028	Oxalic Acid (Permanganate Volumetric Method), Vol. 1
P029	VI. Air Filter Systems-SRL
P030	Californium Neutron Source Preparation
P031	Add WIPP Waste Procedure
P032	Savannah River National Laboratory TRU Waste Receiving and Manifesting
P033	Analytical Development Section WIPP Waste Procedure (U)
P034	Chemical Technology Group WIPP Waste Procedure
P035	Segregation of SRTC/SSD Radioactive Wastes (U)
P036	Shielded Cells, Glovebox, Glove and Bag Maintenance
P037	Glovebox Gloves Change Procedure
P038	Operating Manual for Savannah River Laboratory High Level Caves, Building 773-A
P040	Packaging and Shipping of Solid Radioactive Waste TRU Waste Drum
P041	Technical Manual Curium Processing in the High Level Caves
P042	Curium Processing/High Level Caves, Chapter III Process Directions
P043	Technical Manual Master Copy Am-Cm Target Fabrication

Source Document Number	Title
P044	Transuranic Waste Characterization Plan
P046	TRU Drum Remediation Process
P047	Glovebox Gloves Change Procedure
P048	Absorbing Containerized Liquids
P049	Absorbing Containerized Liquids
P050	Transuranic (TRU) Waste Repackaging in H-Canyon
U001	Chronological History of the TRU Drum Vent Filter