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

FEB 28 2012

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

Subject: Review of Savannah River Site Central Characterization Project Waste Stream Profile Form Number SR-MD-HOM-C

Dear Mr. Kieling:

The Department of Energy, Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number SR-MD-HOM-C, *Inorganic Particulate Waste from the Mound Site*, 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

Jose R. Franco, Manager
Carlsbad Field Office

Enclosure

120232

CBFO:NTP:JRS:PG:12-0435:UFC 5900.00

FEB 28 2012

cc: w/enclosure
J. R. Stroble, CBFO *ED
N. Castaneda, CBFO ED
M. Pinzel, CBFO ED
T. Morgan, CBFO ED
B. Mackie, CBFO ED
T. Hall, NMED ED
T. Kliphuis, NMED ED
S. Holmes, NMED ED
CBFO M&RC
*ED denotes electronic distribution

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: SR-MD-HOM-C							
(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): March 3, 2011							
(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		NO	X			
(9) If no, provide the name and EPA ID of the original generator: Mound Site; EPA ID: OH6890008984							
Waste Stream Information							
(10) WIPP ID: SR-MD-HOM-C						(11) Summary Category Group: S3000 – Homogeneous Solids	
(12) Waste Matrix Code Group: Solidified Inorganics						(13) Waste Stream Name: Inorganic Particulate Waste from the Mound Site	
(14) Description from the ATWIR: Waste Stream SR-MD-HOM-C is comprised of particulate material with a sand-like consistency from cleanout of a sump and drain lines in R Building.							
(15) Defense TRU Waste:	YES	X	NO				
(16) Check One:	CH	X	RH				
(17) Number of SWBs: NA (17a) Number of SLB2: 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, F002, F003, F004 and F005							
(22) Applicable TRUCON Content Numbers: SQ 111 / SQ 211							
(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-8, Revision 7, November 1, 2011, Figures 1, 2, 3, 4 and 5							
(23B) Facility mission description: CCP-AK-SRS-8, Revision 7, November 1, 2011, Section 4.2							
(23C) Description of operations that generate waste: CCP-AK-SRS-8, Revision 7, November 1, 2011, Section 4.3							
(23D) Waste identification/categorization schemes: CCP-AK-SRS-8, Revision 7, November 1, 2011, Section 4.5							
(23E) Types and quantities of waste generated: CCP-AK-SRS-8, Revision 7, November 1, 2011, Section 4.4.1							
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-SRS-8, Revision 7, November 1, 2011, Section 4.4.2							
(24) Waste certification procedures: CCP-TP-030, Revision 29, April 26, 2011							
(25) Required Waste Stream Information							

(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-SRS-8, Revision 7, November 1, 2011, Section 8.1			
(25B) Waste stream volume and time period of generation: CCP-AK-SRS-8, Revision 7, November 1, 2011, Section 8.2			
(25C) Waste generating process description for each building: CCP-AK-SRS-8, Revision 7, November 1, 2011, Section 8.3			
(25D) Waste Process flow diagrams: NA			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-SRS-8, Revision 7, November 1, 2011, Section 8.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See table entitled "Waste Stream SR-MD-HOM-C Waste Material Parameters" in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C.			
(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 P013, P034, P041, P049, P050, P057, P073, P079, P117, P124, P125, P126, P127, P128, P129 and U019 in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C, Source Documents			
(27C) Safety Analysis Reports: See I050, P036 and P067 in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C, Source Documents			
(27D) Waste packaging logs: See I005 in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C, Source Documents			
(27E) Test plans/research project reports: See C042 and M062 in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C, Source Documents			
(27F) Site databases: See I017, I020 and P096 in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C, Source Documents			
(27G) Information from site personnel: See C003, C005, C007, C008, C010, C011, C012, C013, C016, C020, C040 and I048 in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C, Source Documents			
(27H) Standard industry documents: NA			
(27I) Previous analytical data: See C041, C042, DR006, DR017, I005, I019, M063, M064, M076 and P098 in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C, Source Documents			
(27J) Material safety data sheets: See P095 in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C, Source Documents			
(27K) Sampling and analysis data from comparable/surrogate Waste: See C042, M062, P013 and P086 in the Summation of Aspects of AK Summary Report: Waste Stream SR-MD-HOM-C, 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 11, July 20, 2011		
	Visual Examination: NA		

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

Reviewed by AK Expert: YES [X] **Date:** 1/25/2012

Reviewed by STR (if necessary): YES [X] N/A [ ] **Date:** 1/26/2012

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	1/26/12
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) Use back of sheet or continuation sheets, if required.
(2) 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-MD-HOM-C

Lot 1

TABLE OF CONTENTS

CCP Characterization Information Summary Cover Page

Waste Stream # SR-MD-HOM-C Lot #: 1

AK Expert Review: N/A Date: N/A

SPM Review: Richard Kantrowitz Date: 2/22/2012

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

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

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 11	07/20/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 7	10/21/09	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 6	03/04/08	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-052	Rev. 9	02/13/08	CCP Mobile Segmented Gamma Scanner Data Reviewing, Validating and Reporting Procedure
CCP-TP-193	Rev. 3	08/08/11	CCP Data Reviewing, Validating, and Reporting Procedure for the Nondestructive Assay Box Counters
CCP-TP-193	Rev. 2	01/31/11	CCP Data Reviewing, Validating, and Reporting Procedure for the Nondestructive Assay Box Counters
CCP-TP-193	Rev. 1	08/21/08	CCP Data Reviewing, Validating, and Reporting Procedure for the Nondestructive Assay Box Counters

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

WAP Certification:

CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-004	Rev. 30	10/17/11	CCP/SRS Interface Document
CCP-PO-004	Rev. 29	07/05/11	CCP/SRS Interface Document
CCP-PO-004	Rev. 28	12/29/10	CCP/SRS Interface Document
CCP-PO-004	Rev. 27	05/22/09	CCP/SRS Interface Document

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # SR-MD-HOM-C Lot # 1

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes
MDL0502414	SRLBC0185	SRSRTR0347	NA	SSC11-00009	ALD11027M ALD11027N ALD11027S ALD11027V	
MDL0502419	SRSGS282	SR4RTR0054	NA	SSG11-00006	ALD11027M ALD11027N ALD11027S ALD11027V	
MDL0502428	SRSGS286	SRSRTR0347	NA	SSG11-00006	ALD11027M ALD11027N ALD11027S ALD11027V	

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

2/22/2012
Date

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: SR-MD-HOM-C **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Bromoform	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Carbon Disulfide	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Carbon Tetrachloride	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Chlorobenzene	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Chloroform	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
1,1-Dichloroethylene	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
1,2-Dichloroethane	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Ethyl benzene	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Methylene chloride	Log	0	5	-1.31	-1.35	0.03	-1.33	10	2.30		
m,p-Xylene[d]	Log	0	5	-1.04	-1.07	0.02	-1.05	10	2.30		
o-Xylene	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
1,1,2,2-Tetrachloroethane	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Tetrachloroethylene	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Toluene	Log	1	5	-0.53	-1.51	0.55	-1.13	10	2.30		
trans-1,2-Dichloroethylene	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
1,1,1-Trichloroethane	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Trichloroethylene	Log	1	5	-0.71	-1.55	0.47	-1.23	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
1,1,2-Trichloroethane	Log	0	5	-1.71	-1.76	0.03	-1.74	10	2.30		
Trichlorofluoromethane	Log	1	5	-0.56	-1.19	0.35	-0.95	10	2.30		
Vinyl chloride	Log	0	5	-1.71	-1.76	0.03	-1.74	4	1.39		
Acetone	No	0	5[(2)]	22.00	10.89	8.61	17.93	100	N/A		
Butanol	No	0	5[(2)]	11.00	5.45	4.31	8.98	100	N/A		
Methanol	No	0	5[(2)]	11.00	5.45	4.31	8.98	100	N/A		
Methyl ethyl ketone	No	0	5[(2)]	11.00	5.45	4.31	8.98	100	N/A		

CIS005

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: SR-MD-HOM-C **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Ethyl ether	No	0	5 (3)	4.80	2.65	3.04	9.27	10	N/A		
Isobutanol	No	0	5 (2)	22.00	10.89	8.61	17.93	100	N/A		
Pyridine	No	0	5 (2)	11.00	5.45	4.31	8.98	100	N/A		
1,2-Dichlorobenzene[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
1,4-Dichlorobenzene[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Formaldehyde[a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Hydrazine[b]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

[a] Required only for homogenous solids and soil/gravel waste from the Savannah River Site. The SR-MD-HOM-C waste stream was generated at the Mound Site in Ohio and is stored at SRS.

[b] Required only for homogenous solids and soil/gravel waste generated at Oak Ridge National Laboratory and Savannah River Site. The SR-MD-HOM-C waste stream was generated at the Mound Site in Ohio and is stored at SRS.

[c] Can also be analyzed as an SVOC. If analyzed as an SVOC, the QAO's of CCP-TP-001, Table C3-6 applies.

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

Comments:

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

(2) As a result of dilution requirements for 1 of the 5 samples, Acetone, Butanol, Methanol, Methyl ethyl ketone, Isobutanol and Pryridine were reported as non-detected with an MDL value in excess of the PRQL. In accordance with the Waste Analysis Plan, Section C4-3e such observations with elevated MDL values due to dilution were not used in calculating the mean concentration. Consequently, the subject analytes were statistically evaluated with 4, rather than 5, usable observations.

(3) As a result of dilution requirements for 3 of the 5 samples, Ethyl ether was reported as non-detected with an MDL value in excess of the PRQL. In accordance with the Waste Analysis Plan, Section C4-3e such observations with elevated MDL values due to dilution were not used in calculating the mean concentration. Consequently, the subject analytes were statistically evaluated with 2, rather than 5, usable observations. Valid UCL_{90} generated, however, the W statistic and p-value cannot be computed with less than three values as there is no meaningful covariance. As a consequence, the data could not be evaluated for normality and the non-transformed data set was automatically chosen.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

2/22/2012
Date

CIS006

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

WSPF #: SR-MD-HOM-C **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
1,2-Dichlorobenzene [a]	No	0	5	0.10	0.10	0.00	0.10	40	N/A	(2)	
1,4-Dichlorobenzene [a]	No	0	5	0.10	0.10	0.00	0.10	40	N/A	(2)	
2,4-Dinitrophenol	No	0	5	0.10	0.10	0.00	0.10	40	N/A	(2)	
2,4-Dinitrotoluene	No	0	5	0.10	0.10	0.00	0.10	40	N/A	(2)	
Hexachlorobenzene	No	0	5	0.10	0.10	0.00	0.10	40	N/A	(2)	
Hexachloroethane	No	0	5	0.10	0.10	0.00	0.10	2.6	N/A	(2)	
2-Methylphenol (cresols)	No	0	5	0.10	0.10	0.00	0.10	2.6	N/A	(2)	
3&4 -Methylphenol (cresols)	No	1	5	0.54	0.19	0.20	0.32	40	N/A		
Nitrobenzene	No	0	5	0.10	0.10	0.00	0.10	40	N/A	(2)	
Pentachlorophenol	No	0	5	0.10	0.10	0.00	0.10	40	N/A	(2)	
Pyridine [a]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

[a] Can also be analyzed as a VOC. If analyzed as a VOC, the QAO's of CCP-TP-001, Table C3-4 apply.

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) Bad numerical conditions. All five data points the same - no variabilty. Valid UCL_{90} could not be generated. UCL_{90} value listed is the maximum analytical value.

CIS007

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

2/22/2012
Date

CCP Solids Analysis Metals UCL_{90} Evaluation Form

WSPF #: SR-MD-HOM-C **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL90 (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Antimony	Log	5	5	6.45	4.29	2.24	5.83	100	4.61	Yes	(2)
Arsenic	Log	5	5	3.74	2.35	1.03	3.06	100	4.61		
Barium	Log	5	5	7.94	5.68	1.92	6.99	2000	7.60		
Beryllium	No	5	5	1.10	0.69	0.43	0.98	100	N/A		
Cadmium	SQRT	5	5	10.49	5.47	3.98	8.20	20	4.47	Yes	D006
Chromium	Log	5	5	7.82	5.49	1.86	6.76	100	4.61	Yes	D007
Lead	No	5	5	1500.00	872.00	641.50	1311.86	100	N/A	Yes	D008
Mercury	SQRT	5	5	50.99	25.47	18.50	38.16	4	2.00	Yes	D009
Nickel	Log	5	5	7.17	5.16	1.52	6.20	100	4.61	Yes	(2)
Selenium	SQRT	3	5	2.74	1.57	0.89	2.18	20	4.47		
Silver	SQRT	5	5	18.71	10.13	6.71	14.73	100	10.00	Yes	D011
Thallium	No	0	5	0.40	0.40	0.00	0.40	100	N/A		
Vanadium	Log	5	5	3.26	2.69	0.38	2.95	100	4.61		
Zinc	No	5	5	6400.00	3139.80	2740.62	5018.96	100	N/A	Yes	(2)

CT SOD 8

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) Antimony, Nickel, and Zinc are not listed under 40CFR 261.30 or as a toxicity characteristic contaminant per 40CFR 261.20.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

2/22/2012
Date

CCP Solid VOCs Summary Data

Waste Stream Number SR-MD-HOM-C Waste Stream Lot Number 1

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

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 2/22/2012

CCP Solid SVOCs Summary Data

Waste Stream Number SR-MD-HOM-C Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
Phenol	0.62	1	20.00%
Benzyl chloride	4.90	3	60.00%
bis(2-ethylhexyl)phthalate	22.00	5	100.00%
Dibutyl phthalate	0.95	1	20.00%
1,2-Benzenedicarboxylic acid, butyl octyl ester	2.20	2	40.00%
Benzyl butyl phthalate	4.60	2	40.00%
Fluoranthene	6.10	1	20.00%
Chrysene	1.60	1	20.00%
Benzo[k]fluoroanthene	2.40	1	20.00%
Benzo[a]pyrene	2.30	1	20.00%
Indeno[1,2,3-cd]pyrene	1.40	1	20.00%
Tetrachlorobiphenyl	1.40	1	20.00%
Pentachlorobiphenyl	11.14	1	20.00%
Hexachlorobiphenyl	0.98	1	20.00%

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

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

Comments:

This waste stream consists of three containers. Per CCP-TP-162 and Solids Random Section Memorandum CP:11:01720, five solids samples are required for analysis. Consequently, two containers were sampled twice.

Benzyl chloride, bis(2-ethylhexyl)phthalate, 1,2-Benzenedicaboxylic acid butyl octyl ester, and Benzyl butyl phthalate are reported in greater than 25% of the samples. These compounds are not being added to the target compound list as these three containers comprise the entire waste stream and no other sampling will be performed. As none of the compounds are F001 through F005 solvents, nor are they Toxicity Characteristic, EPA HWNs are not being applied.

TICs are reported based on presumptive evidence (mass spectral library search) of the compound being in the sample. Specific identification cannot be performed without analysis of a known standard for comparison of retention times and spectra.

SPM Signature  Date 2/22/2012

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: SR-MD-HOM-C Lot #: 1

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

a. See Batch Data Reports

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

Justification for the selection of RTR and/or VE: Containers in this waste stream were characterized using RTR. RTR was selected as the characterization method for the containers because the waste was previously packaged and RTR meets all the Data Quality Objectives for NDE for waste stream SR-MD-HOM-C.

Site Project Manager Signature | Richard Kantrowitz (Printed Name) | 2/22/2012 (Date)

CCP Reconciliation with Data Quality Objectives

WSPF# SR-MD-HOM-C Lot # 1

Sampling Completeness

RTR:

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-MD-HOM-C Lot # 1

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	Y	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	Y	The TRU activity reported in the BDRs for each container demonstrates with a 95% probability that the container of waste contains TRU radioactive waste.
5	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
6	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.

CCP Reconciliation with Data Quality Objectives

WSPF# SR-MD-HOM-C Lot # 1

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	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:
Due to high levels of alpha contamination in the extracts, the non-halogenated volatiles fraction of the Total VOC was diluted. As a consequence, Acetone, Butanol, Methanol, Methyl ethyl ketone, Isobutanol, and Pyridine generated four (4) usable data points and Ethyl ether generated two (2) usable data points. The other 22 VOC compounds generated five (5) usable data points.

Signature of Site Project Manager | Richard Kantrowitz (Printed Name) | 2/22/2012 (Date)

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: Waste Stream SR-MD-HOM-C

Overview:

The SR-MD-HOM-C waste stream consists of mixed Contact Handled (CH) transuranic (TRU) inorganic particulate waste generated at the Research (R) Building at the Mound Site and stored by the Savannah River Site (SRS). The containers in this waste stream were transferred from the Mound Site to SRS for characterization and storage between 2001 and 2005. Mound was an integrated research, development, and production facility performing work in support of both U.S. Department of Energy (DOE) weapons and energy programs. The primary mission as it relates to the generation of TRU waste was the processing of Plutonium (Pu)-238 for the fabrication of radioisotopic heat sources for space and military applications. The R Building was used for research and development (R&D) for a multitude of programs including Pu-238 research. Since 1980, Mound operations have included radiochemical analysis, decontamination and decommissioning (D&D), and site remediation.

Waste stream SR-MD-HOM-C was contaminated with or generated by Mound operations in support of defense nuclear materials production and defense R&D. 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-MD-HOM-C for mixed inorganic particulate waste from SRS. The primary source of information for this Summation is CCP-AK-SRS-8, Central Characterization Project Acceptable Knowledge Summary Report For Mound Site Transuranic Waste Stored at Savannah River Site, Waste Streams: SR-MD-HET, SR-MD-SOIL, SR-MD-HOM-A, SR-MD-HOM-C, Revision 7, November 1, 2011.

Waste Stream Identification Summary:

Waste Stream Name:	Inorganic Particulate Waste from the Mound Site
Waste Stream Number:	SR-MD-HOM-C
Dates of Waste Generation:	2003 and 2004
Waste Stream Volume – Current:	3 55-gallon drums
Waste Stream Volume – Projected:	None
Summary Category Group:	S3000 – Homogeneous Solids
Waste Matrix Code Group:	Solidified Inorganics
Waste Matrix Code:	S3110
TRUCON Content Numbers:	SQ 111/SQ 211
Annual Transuranic Waste Inventory Report (ATWIR) Identification Number:	SR-MD-HOM-C

Waste Stream Description and Physical Form:

Waste stream SR-MD-HOM-C is comprised of three 55-gallon drums of particulate material/residue (hard water mineral deposits, sand, and gravel) from cleanout of a sump and drain lines in R Building. The residue has a sand-like consistency. The drums also contain other material that came in contact with the residue, including miscellaneous metallic objects (nuts, bolts, screws), mop strings, cotton rags, rubber gloves, paper personal protective equipment (PPE), plastic PPE, plastic glovebag material, and plastic tape (Reference U020).

The waste stream meets the definition of waste materials that have common physical form, that contain similar hazardous constituents, and that are generated from a single process or activity. This waste stream is a small population of containers generated during the cleanout of the R-128 sump and drain lines in the R Building.

Point of Generation:

Location

Waste stream SR-MD-HOM-C was generated at the Mound Site in Miamisburg, Ohio. The waste is currently stored at the SRS E-Area TRU waste storage pads in Aiken, South Carolina.

Area and/or Buildings of Generation

Waste stream SR-MD-HOM-C was generated at the Mound Site in R Building.

Generating Processes:

Description of Waste Generating Processes

This waste stream was generated during the cleanout of the R-128 sump and drain lines in R Building.

R Building was built in 1948 and had a multitude of programs involving numerous radionuclides over the many years of operation. The TRU nuclides Pu-238, Pu-239, and Am-241 were first introduced in 1956 with the alpha and neutron source programs. Pu-238 heat source research began in 1959. The major R&D programs in R Building included (References I090 and P054):

- Fabrication of Po-210 neutron sources and thermoelectric generators
- Separation of plutonium from irradiated U-238
- Separation of Ac-227 from irradiated Ra-226
- Separation of Pa-231 from residues of previous uranium processing
- Separation of Th-230 from residues of previous uranium processing
- Fabrication of alpha and neutron sources; Pu-238, Pu-239, Am-241
- Examination of U-235, U-238, Pu-239, Am-241, Np-237, and Cm-244 for use as reactor fuels
- Separation of Sr-90 and Y-90

- Separation of Pa-231 and Pa-233
- Fabrication of Pu-238 heat sources for thermoelectric generators
- Separation of U-234 from aged Pu-238
- Tritium (H-3) research

TRU nuclides were first introduced to R Building in 1948 with the separation and recovery of plutonium from irradiated uranium. The alpha and neutron source programs and reactor fuels research began in 1956. The initial research using Pu-238 as a heat source began in 1959 (References I090 and P054). Decontamination operations in R Building were ongoing throughout its operational history to make way for new programs. Most of the R&D and analytical operations that generated TRU waste in R Building, including the labs that supported the Pu-238 heat source program, the reactor fuels program, and the U-234 separation program, ended by the late-1970s. D&D of many of these labs occurred throughout the 1980s (References P053 and P054).

Waste stream SR-MD-HOM-C was generated from cleanout of a sump in R-128 and cleanout of the drain lines in R Building. The alpha sump in R-128 serviced the alpha contaminated sinks in R Building. The cleanout of the process drain lines in R Building resulted in a residue from scouring and vacuuming (Reference P029, P072, and U020).

Waste Stream Material and Chemical Inputs

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

Toxicity Characteristic and Listed Constituents in Waste Stream SR-MD-HOM-C

Chemical	EPA HWN	Use/Presence	References
Arsenic	D004	Analysis in R Building R Building chemical inventory (1996, 1998)	P020 P096
Barium	D005	Analysis in R Building R Building chemical inventory (1996, 1998) Chemical used in R Building	P020 P096 C016, I008, M004
Cadmium	D006	Analysis in R Building R Building chemical inventory (1996) Chemical used in R Building	P020 P096 C009, I008, M004
Chromium	D007	Analysis in R Building R Building chemical inventory (1996, 1998) Chemical used in R Building	P020 P096 C009, I008, M004
Lead	D008	Waste Disposal (WD) influent from R Building analytical laboratories Analysis in R Building R Building chemical inventory (1996, 1998) R Building chemical inventory (1998)	I045, P100 P020 P096 C012

Chemical	EPA HWN	Use/Presence	References
Mercury	D009	WD influent from R Building analytical laboratories Analysis in R Building R Building chemical inventory (1996, 1998) R Building chemical inventory (1998)	I045, P100 P020 P096 C012
Selenium	D010	Analysis in R Building R Building chemical inventory (1996, 1998) Chemical used in R Building	P020 P096 C016, I008, M004
Silver	D011	Analysis in R Building R Building chemical inventory (1996) Chemical used in R Building	P020 P096 C009, I008, M004
1,1,1-Trichloroethane	F002	Solvent extraction in R Building Chemical used in R Building	I090 C016
1,1,2-Trichloroethane	F002	Chemical used in R Building	C016
1,1,2-Trichloro-1,2,2-trifluoroethane	F002	R Building chemical inventory (1996, 1998) Chemical used in R Building	P096 C005, C016
Chlorobenzene	F002	R Building chemical inventory (1996)	P096
ortho-Dichlorobenzene	F002	Chemical used in R Building	C016
Methylene chloride	F002	Solvent extraction in R Building Ultrasonic cleaning in R Building R Building chemical inventory (1996, 1998) Chemical used in R Building	I090 P020 P096 C016
Tetrachloroethylene	F002	Chemical used in R Building	C011, C016
Trichloroethylene	F002	WD influent from R Building analytical laboratories R Building chemical inventory (1996, 1998) Chemical used in R Building	P100 P096 C011, C016
Acetone	F003	WD influent from R Building analytical laboratories Ultrasonic cleaning in R Building Chemical used in R Building	P100 P020 C005
n-Butyl alcohol	F003	Chemical used in R Building	C016
Cyclohexanone	F003	R Building chemical inventory (1996) Chemical used in R Building	P096 C016
Ethyl acetate	F003	Chemical used in R Building	C016
Ethyl benzene	F003	Chemical used in R Building	C016
Ethyl ether	F003	Chemical used in R Building	C016
Methanol	F003	WD influent from R Building analytical laboratories Chemical used in R Building	P100 C016
Methyl isobutyl ketone	F003	Chemical used in R Building	C016
Xylene	F003	R Building chemical inventory (1996, 1998) Chemical used in R Building	P096 C011
Nitrobenzene	F004	R Building chemical inventory (1998) Chemical used in R Building	P096 C016
2-Ethoxyethanol	F005	Chemical used in R Building	C016
2-Nitropropane	F005	Chemical used in R Building	C016
Benzene	F005	R Building chemical inventory (1996, 1998)	P096

Chemical	EPA HWN	Use/Presence	References
		Chemical used in R Building	C011, C016
Carbon disulfide	F005	Chemical used in R Building	C016
Isobutanol	F005	Chemical used in R Building	C016
Methyl ethyl ketone	F005	Chemical used in R Building	C011, C016
Pyridine	F005	R Building chemical inventory (1996) Chemical used in R Building	P096 C016
Toluene	F005	R Building chemical inventory (1996, 1998) Chemical used in R Building	P096 C011, C016

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 Ohio Environmental Protection Agency and the South Carolina Department of Health and Environmental Control. The containers in this waste stream were historically managed as non-hazardous waste. However, a review of available AK documentation has determined that this waste is hazardous. Toxic characteristic and F-listed constituents were used in R Building, the waste was not sampled and analyzed at the time of generation, and hazardous constituents were identified in influent to the WD Building from the R Building. The above table summarizes the expected hazardous chemical contaminants and associated hazardous waste numbers applicable to the waste stream. The assignment of these hazardous waste numbers was based primarily on a review of the chemical inputs to the waste generating operations and hazardous materials potentially contaminating the waste stream. AK was collected from a variety of sources, including standard operating procedures, chemical inventories, and interviews (References DR008 and U020).

Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

The waste material in waste stream SR-MD-HOM-C does not meet the definition of ignitability as defined in 40 CFR 261.21. Mound used ignitable liquids including alcohols (e.g., ethanol, isopropanol, methanol) and non-chlorinated solvents (e.g., acetone, toluene). However, 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. In addition, incompatible materials that may cause the generation of heat, fire, or flammable gas are placed in separate containers and are not included in this waste stream (Reference P079).

According to procedure and in compliance with waste acceptance criteria, containers are drained before disposal and inner containers are vented prior to disposal in TRU waste (References I010, P041, P065, P078, and P105). Radiography was performed by CCP to ensure the absence of ignitable compressed gases. Pyrophorics have not been identified in this waste stream, and procedures and waste acceptance criteria prohibit the disposal of pyrophorics in TRU waste (References C003, I010, P041, P065, P078, and P105). Pyrophoric materials were not typically handled in areas where TRU waste was generated (Reference P065). Therefore, the waste number for ignitability (D001) does not apply to this waste stream.

The waste material in waste stream SR-MD-HOM-C is not liquid and does not contain unreactive corrosive chemicals; therefore, it does not meet the definition of corrosivity as

defined in 40 CFR 261.22. Mound used acids (e.g., nitric, hydrochloric, hydrofluoric, sulfuric) and caustics (e.g., sodium hydroxide). According to procedure and in compliance with waste acceptance criteria, containers are drained before disposal and liquids are neutralized (References P041, P065, P078, and P105). Therefore, the waste number for corrosivity (D002) does not apply to this waste stream.

The waste material in waste stream SR-MD-HOM-C does 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 waste does not contain cyanides or sulfides. The materials are not capable of detonation or explosive reaction. Explosives have not been identified in this waste stream, and procedures and waste acceptance criteria prohibit the disposal of explosives in TRU waste (References I010, P041, P065, P078, and P105). Therefore, the waste number for reactivity (D003) does not apply to this waste stream.

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

Toxicity Characteristic

Based on the evaluation of the AK source documentation, this waste stream contains or is contaminated with toxicity characteristic metals per 40 CFR 261.24. The toxicity characteristic metals arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver were used in R Building and may be present in this waste stream. Therefore, EPA hazardous waste numbers D004, D005, D006, D007, D008, D009, D010, and D011 are applied to waste stream SR-MD-HOM-C (Reference DR008).

Based on the evaluation of the AK source documentation, several of the F-listed solvents identified in the above table are also toxicity characteristic organics. They include benzene, chlorobenzene, methyl ethyl ketone, nitrobenzene, pyridine, tetrachloroethylene, and trichloroethylene. However, these compounds are known to have been used for their solvent properties or were known to be used in R building, and therefore, the more specific F-listed hazardous waste numbers are assigned. Therefore, D018 (benzene), D021 (chlorobenzene), D035 (methyl ethyl ketone), D036 (nitrobenzene), D038 (pyridine), D039 (tetrachloroethylene), and D040 (trichloroethylene) are not assigned to waste stream SR-MD-HOM-C (Reference DR008).

Listed Waste

F-Listed Waste

This waste stream may contain or be mixed with F-listed hazardous wastes from non-specific sources as listed in 40 CFR 261.31. Waste stream SR-MD-HOM-C was generated from the removal of residue from sumps and drain lines historically used to collect and transfer waste water to WD Building for treatment. The WD Building operations were designed to treat aqueous liquids, not organic solvents. However, several F003-listed solvents are miscible in water and have been identified in influent to WD Building. In addition, F003 has also historically been assigned to SRS waste streams. The F002-listed solvent trichloroethylene, which is not miscible in water, was also identified in influent to WD Building. Since a solvent that is immiscible in water was identified in WD Building influent, it is possible that waste water contaminated with other immiscible solvents used in R Building could have been treated in WD Building. The F-listed hazardous waste numbers applied to this waste stream were also based

on either solvent use (e.g., solvent extraction and ultrasonic cleaning) or chemicals known to be used in R building. Therefore, EPA hazardous waste numbers F002, F003, F004, and F005 are assigned to waste stream SR-MD-HOM-C (Reference DR008).

Although 1,1,1-trichloroethane, methylene chloride, tetrachloroethylene, and trichloroethylene are also F001-listed solvents, this assignment is only appropriate when these solvents are used in a large-scale degreasing operation such as cold cleaning or vapor degreasing on an industrial scale. This waste was not generated as a result of large-scale degreasing operations. Therefore, EPA hazardous waste number F001 is not assigned to this waste stream (Reference DR008).

K-Listed Waste

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

P- and U-listed Wastes

Waste stream SR-MD-HOM-C 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 P- and U-listed chemicals were identified in Mound facilities; however, none of the AK documentation reviewed indicates that pure product or unused chemicals were placed into TRU waste or treated in WD Building. Based on a review of the AK documentation, beryllium (e.g., beryllium powder) was not included in this waste stream. Therefore, EPA hazardous waste number P015 is not assigned to the waste stream. In addition, the organic solvents were in spent aqueous solutions transferred WD Building by pipeline or were used in R Building for their intended purpose which does not meet the definition of a U-listed waste. Hydrofluoric acid was used in Mound facilities, including the R Building. The review of the AK source documentation did not identify the disposal of unused hydrofluoric acid or disposal of materials contaminated with spills of this acid; therefore, the EPA hazardous waste number U134 is not assigned. Therefore, this waste stream is not assigned P- or U-Listed EPA hazardous waste numbers (References DR008, I045, P100, and U020).

Polychlorinated Biphenyls (PCBs)

No sources of PCBs were identified as inputs into this waste stream (References I045, P100, and U020). CCP certified solid sampling identified PCBs in this waste stream; however, the total concentration of PCBs was less than 50 parts per million. Therefore, waste stream SR-MD-HOM-C is not regulated as a Toxic Substances Control Act waste under 40 CFR 761.

Prohibited Items

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

Method for Determining Waste Material Parameters Weights per Unit of Waste

The waste material parameters associated with waste stream SR-MD-HOM-C are based on specific waste items identified in packaging logs, and waste disposal forms. To estimate the waste material parameter weight percentages for waste stream SR-MD-HOM-C, data were obtained from the 29-90 forms. A statistical analysis of the 29-90 data was performed, the results of which are presented in the below table.

Waste Stream SR-MD-HOM-C Waste Material Parameters

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	0.5%	0.0 - 1.7%
Aluminum-based Metals/Alloys	0.0%	0.0 - 0.0%
Other Metals	0.0%	0.0 - 0.0%
Other Inorganic Materials	0.0%	0.0 - 0.0%
Cellulosics	0.5%	0.0 - 1.7%
Rubber	0.5%	0.0 - 1.7%
Plastics (waste materials)	2.6%	0.0 - 9.0%
Organic Matrix	0.5%	0.0 - 1.7%
Inorganic Matrix	95.4%	84.1 - 100.0%
Soils/gravel	0.0%	0.0 - 0.0%

List of AK Sufficiency Determinations Requested for the Waste Stream

There are no AK sufficiency determination requests for this waste stream.

Transportation

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

Beryllium

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

Radionuclide Information

Waste stream SR-MD-HOM-C originated from the R Building (Reference U020). R Building performed R&D on a variety of isotopes most notable the heat source Pu-238 for Radioisotopic Thermoelectric Generators. Although Pu-238 is not one of the two predominant radionuclides by mass based on CCP characterization data, it was the third most predominant radionuclide and it was detected in all three containers. In addition, the two most predominant radionuclides by activity are Pu-238 and Pu-239 which is consistent with heat source plutonium (Reference DR017).

Radiological Distribution for Waste Stream SR-MD-HOM-C

Radionuclide	Total Radionuclide Weight%[1,5]	Total Radionuclide Curie%[2,5]	Radionuclide Wt% Range for Individual Containers[3,5]	Radionuclide Ci% Range for Individual Containers[4,5]	Suspected Present (Yes/No)
WIPP Required Radionuclides					
Am-241	0.51%	0.70%	0.03% – 1.72%	0.04% – 1.44%	Yes
Pu-238	14.27%	**97.96%**	11.82% – 23.45%	97.31% – 99.94%	Yes
Pu-239	**52.94%**	**1.32%**	0.00% – 76.20%	0.00% – 1.87%	Yes
Pu-240	Not Reported	Not Reported	Not Reported	Not Reported	Yes
Pu-242	0.02%	Trace	0.02% – 0.03%	Trace	Yes
U-233	Not Reported	Not Reported	Not Reported	Not Reported	Yes
U-234	6.91%	0.02%	5.71% – 11.37%	0.02% – 0.02%	Yes
U-238	Not Reported	Not Reported	Not Reported	Not Reported	Yes
Cs-137	Trace	Trace	Trace	Trace	Yes
Sr-90	Trace	Trace	Trace	Trace	Yes
Additional Measured Radionuclides					
Ac-227	Trace	Trace	0.00% – Trace	0.00% – 0.01%	Yes
Ra-226	Trace	Trace	0.00% – 0.06%	0.00% – 0.01%	Yes
Np-237	1.51%	Trace	0.56% – 2.54%	Trace	Yes
U-235	**23.84%**	Trace	0.00% – 81.86%	0.00% – Trace	Yes
Other Potential Radionuclides[6]					
Ac-222	Cm-244	H-3	Pa-231	Pa-233	Pu-236
Pu-241	Th-228	Th-229	Th-230	Th-232	

1. This listing indicates the total wt% of each radionuclide over the entire waste stream.
2. This listing indicates the total activity (curie) percent 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 curie percent range of each radionuclide on a container-by-container basis.
5. "Trace" indicates < 0.01 wt% for that radionuclide.
6. This listing includes radionuclides reported in generator data but not detected during CCP certified assay data (e.g., Th-230).

Payload management will not be utilized for this waste stream.

Source Documents

Source Document Number	Title
C003	Interview with Bill Franz
C005	Interview/Dan Hopkins
C006	Interview/Dick Blauvelt
C007	Interview with Dr. Bernie Kokenge
C008	Interview with Toby Elswick
C009	Interview with Paul Figgins
C010	Interview/Clyde Chong
C011	Interview/Ron Goss
C012	Interview/Bill Davis
C013	Interview/Al Combs
C016	Interview/Ron Saun
C019	Interview/Mike Deaton
C020	Record of Communication Don Luthey
C022	Justification for Pu-238 Programs
C024	List of different types of containers
C040	E-mails from C. Sienkiewicz to J. Harrison, Re: Mound Soil and Soil Packaging Questions
C041	Rockwell International Letter from J. K. Paynter to B. C. Barrett. Subject: Radionuclide Information Required For TRUPACT II Shipments
C042	Letters to Thomas L. Clements, EG&G Idaho from R.N. Rogers, LANL, Re: Reactivity of Resins (nitrated)
C043	Email from Jeff Harrison to Felicia Hinojos re: SRS-8 Freeze File – SR-MD-SOIL Layers of Confinement
C044	E-mail to Mike Papp: Subject Packaging Procedures: Repackaging plans for TRU waste described in CCP-AK-SRS-8
C046	Reconciliation of Waste Containers List for Waste Streams SR-MD-HET, SR-MD-HOM-A, SR-MD-HOM-C, and SR-MD-SOIL
DR001	Discrepancy Resolution. RCRA Characterization of Waste Stream SR-MD-HET Revision 1
DR002	Discrepancy Resolution. RCRA Characterization of Waste Stream SR-MD-SOIL Revision 1
DR003	Discrepancy Resolution. RCRA Characterization of Waste Stream SR-MD-HOM-A
DR005	Discrepancy Resolution. Radionuclides in Mound Waste Streams Revision 1
DR006	Discrepancy Resolution. Drums Moved from Waste Stream SR-MD-SOIL to Waste Stream SR-MD-HET
DR007	Discrepancy Resolution. Drums in Waste Stream SR-MD-SOIL Containing Residual Liquids
DR008	Discrepancy Resolution. RCRA Characterization of Waste Stream SR-MD-HOM-C
DR009	Discrepancy Resolution. MDL021377 Compacted Waste
DR010	Discrepancy Resolution. Drums Not S5000
DR017	Acceptable Knowledge Source Document Discrepancy Resolution – Waste Stream SR-MD-HOM-C Radiological Characterization
I001	Transuranic Waste Baseline Inventory Report 1995
I003	Milliwatt Surveillance Program Ensures RTG Safety and Reliability. The Actinide Research Quarterly
I005	Waste Exam Log for RTR Tapes
I007	O.U.9 Site Scoping Report
I008	Drum Container Tables
I010	TRAMPAC Requirement Matrix by Drum
I011	EPA Hazardous Waste Codes found in INEL Stored TRU Waste Content Code
I017	List of Drums /Date/Source/Operation/Misc./By
I018	Draft Mound Compliance with TRUPACT II
I019	Waste Characterization Services Report

Source Document Number	Title
I020	Spreadsheets of Waste from SRS Bill Nauman and Glen Siry
I021	Completion of Mound "Newly Generated Waste" TRU Waste Certification Program Evaluation
I023	Criticality Safety Evaluation for Mound RTG Storage DRAFT
I026	Predecisional Draft for the Semi-Works/Research (SW/R) Tritium Complex
I028	CERCLIS Memo
I030	Mound Lab Annual Report
I031	Plutonium Working Group Report on Environmental, Safety and Health Vulnerabilities Associated with the Departments Plutonium Storage Vol.2-App.B-Part 7
I032	Mound Heat Source
I033	Investigation Report No.74-13 Plutonium Off-site
I036	Mound Laboratory
I039	Transportation/Communication Plan 11/28/00 TRU Waste Shipment to SRS.
I043	Mound Laboratory Fact Book
I044	Pu-238 Fuel Data Sheets
I045	TRU Waste Certification Task Sludge From the Waste Disposal Plant
I048	Regulatory Requirements Associated with Transfer of Mound's Transuranic Waste to Another DOE Site
I050	Support to DOE Mound- Building 38 Safety Analysis Report (SAR) and Technical Requirements (TSRs)
I057	R. M. Munson Memo to R.A. Neff of 2-1-85/Ohio EPA Proposed Law Suit
I063	On Site Handling, Repackaging, and Transportation of Nuclear Materials Located In SW-19 and R-127 (UCNI)
I066	Mound Transuranic Waste Feasibility Study
I067	Verification Methods Matrix
I070	Mound Site TRU Waste Data Preliminary TRUPACT II Transportation Compliance Evaluation
I072	1 S SRS Waste Acceptance Criteria Manual
I074	Container Approval Requests and Deviations for Shipments
I081	Material Type Codes
I082	Tables of TRU waste packages
I083	A-Line gloveboxes - Summary of characterization data
I084	Waste Category - TRU Boxes
I086	TRU Waste Box 558
I090	Operable Unit 9, Site Scoping Report: Volume 7 – Waste Management
I092	Go West Data Base From SRS
M001	Mound Site [Miamisburg] - United States Nuclear Forces Web Site-www.globalsecurity.org/wmd/facility/mound.htm
M002	Chemical Compatibility and Material List Data Requirements for TRUPACTII Authorized Payload Compliance Plan
M003	TRUPACT-II Shipment of Mound Pu-239 Material
M004	"Summary Report on Mound Boxes," E-mail to KellyCR@wipp.carlsbad.nm.us [Clint Kelley]
M006	Memo From DOE Ohio Field Office to EPA-Mr. Tony Martig, Re: PCBs in Oil
M012	Facsimile Transmittal to Glenn Siry, Re: Mound Facility-Background Volume STP FY00 Update
M014	Interview Notes
M015	Letter to R. L Wainwright, Area Manager, U. S. AEC, Re: Program to Reduce the Generation of Transuranium (TRU) Contaminated Solid Waste
M016	Letter to J.L. Hebb, Re: Status of Pu Waste and TRU Implementation
M017	E-mail to HERTFR@doe-md.gov, Re: Emailing: space-desc [Office of Space and Defense Power System]

Source Document Number	Title
M018	Letter to W.W. Hickman, Waste Management Manager, Aerojet Nuclear Co., Re: Shipment of Mound Laboratory's TRU Waste to the NRTS for Retrievable Storage
M025	Notes from a draft document [title not given]
M027	Mound Laboratory-Classified Document, Summary ADC Unclassified 4/1/03, Defense Processes at Mound
M029	Memo to W.P. Davis and T.C. Elswick, Re: SAND Boxes
M031	List of sources of TRU waste from Main-Hill Tritium (MHT) project
M034	Memo on 3 subjects 1) Use of Insta-Foam Froth Pak, 2) Equipment Removal, 3) Use of the Cardboard Liner in the FRP Box
M036	Specification Drum 55 gal. DOT-17C
M037	Change Notice of Offsite Packaging Criteria (IDO-10074) for Revised Metal Container Painting Requirements-RHB-263-81
M038	Specification- Drum 30 gal. DOT-17H, WMP-572005
M039	Specification-Container, Waste: DOT 7A Steel Box (MIII Bin), WMP-572010
M040	Letter to D.A. Edling, Re: "Idaho TRU Waste Criteria" with attached Letter to H.N. Hill and D. Ofte, Area Manages, DOE Dayton and Rocky Flat Area Offices, Re: "Revision of the Off-Site Packaging Criteria for Receipt of TRU Waste at the INEL RWMC
M041	Letter to R. K. Blauvelt, Re: "Change Notice of Offsite Packaging Criteria Report IDO-10074-RMS-61-81" and attached "Specification Sponge Rubber Gasket DOT 17C 55-Gallon Drum"
M042	Current Scope of Activities at Mound (a presentation)
M043	Letter to B.G. Twinning, Manager, AL, Re: Mound TRU Waste Shipments to INEL
M044	E-mail to DOE_OH.MOUND.Church Ronald, Re: Process Knowledge for Old SD Project
M052	E-mail to COLVRL, Re: Contaminated Precious Metals
M054	Letter to J.P. Hamric, Director, Nuclear Fuel Cycle Div. ID, Re: Packaging Criteria for TRU Waste Shipments to INEL
M055	Memorandum to D. Agnew, et. al., Re: WTS Line Removal Problems/Suggestions
M059	Mound MDL Numbers
M060	Request for Deviation to SRS Waste Acceptance Criteria Manual
M061	Sample and Analysis Plan-West Asphalt (SM/PP Hill), E. Jendrek, no date; E-mails to L. Turner from E.F. Jendrek, 1) Re: Validation of West Asphalt Soil Sampling, 9/16/03, 2) Validation of West Asphalt Soil Sampling, 2/18/04; Data Review & Validation-West Asphalt Radiological, E. Jendrek, no date; Spreadsheets: West Asphalt Gamma Spec. Characterization, Metals, Semi-volatiles, and Volatiles
M062	R and SW Buildings Sampling & Analysis Plan, 4/02; E-mail to L. Turner from E.F. Hendrek, Re: Data Evaluation Summary, R/SW Phase 1 Soil Sampled May-June, 2002, 1/12/05; Table B-1, Analytical Results for TCLP Metals and Volatiles, no date; Data Review & Validation R/SW Phase 1 Metals, no date; Data Review & Validation R/SW Phase 1 PCB, no date; and Data Review & Validation R/SW Phase 1 VOA, no date
M063	Straight Bill of Lading. Shipper: U.S. DOE, c/o CH2M Hill Mound, Inc.
M064	E-mail Correspondence (and attached RTR data) from Steve Rose to Jeff Harrison. Subject: SR-MD-SOIL
M065	Evaluation of Additional Containers for SRS-8 Waste Stream SR-MD-HET (Mound)
M076	Waste Stream Profile Form for IN-W174.1082, IN-W174.154, IN-W177.1083, IN-W177.156
P001	Alpha Fuels Environmental Test Facility (Day 59)
P013	Assessment of the AWC TRU Clean Process for use on Mound Soils and Sediments
P015	Tools for Decontamination and Decommissioning of Nuclear Facilities
P016	Mound's Decommissioning Experience, Tooling, and Techniques
P017	The Mound Site Survey Project for the Characterization of Radioactive Materials in the Site Soils
P018	Reinvestigation of the January 1969 Plutonium-238 Waste Transfer Line Break

Source Document Number	Title
P020	Characterization of Mounds Hazardous, Radioactive, and Mixed Waste
P021	Separation and Purification of Radioisotopes for Research
P023	Mound Facility Physical Characterization
P027	EG&G Mound Building 38 Accident Analysis of Internal (Operational) Events (Results and Findings)
P028	Mound Building 38 FSAR: Pu-239 Repackaging, Phase 1
P029	Building 50 Radioisotopic Thermoelectric Generator Assembly and Testing Facility Final Safety Analysis Report
P030	SW/R Complex Basis for Interim Operations
P034	Estimated Discard Limits for Plutonium-238 Recovery Processing in the Plutonium Processing Building
P036	Hazard Evaluation of the Special Metallurgical (SM) Building at Mound Laboratory
P037	Building WDA, Room 10 Glovebox Removal Wall Removal, Characterization, and Cleanup
P040	Executive Summary of TRU Waste at Mound
P041	Technical Manual. TRU Waste Management
P044	FSAR Building 38 *******UCNI*******
P045	Waste Disposal Facility Auditable Safety Analysis
P048	Vent TRU Drums in CWPF
P049	TRU Drum Venting Fact Sheet and TRU Drum Venting System Pre-Operational Process Hazards Review
P050	TRU Waste Drum Venting and Purging System
P051	The Use of Urethane Foam in the Decontamination and Decommissioning of Nuclear Facilities
P053	Ten Year Plan for Decontamination and Decommissioning for Mound
P054	Mound Site Radionuclides by Location
P055	A Summary Review of Mound Laboratories Experience in D&D of Radioactive Facilities
P056	Decontamination and Decommissioning Projects Findings of No Significant Impact
P057	D&D Operations Procedures
P058	Mound Site Waste Management Reports and Site Plans 1977-1980
P061	Citing Criteria Document
P063	Mound Site Waste Management Reports and Site Plans 1972 to 1976
P064	Mound Site Waste Management Reports and Site Plans 1981 to 1989
P065	Mound WIPP Certification Program for Newly Generated Contact Handled (CH) Transuranic Waste
P066	Maps Site Plans
P067	Revised U-233 Re-Pack Project
P070	Mound Laboratory Annual Report CY 1974
P072	Final Safety Analysis Report for the SW/R Tritium Complex
P073	On Site Transportation and Handling of Radioactive and Hazardous Materials
P076	USERS Handbook: Waste Accountability Shipping and Packaging (issue 14 is inactive).
P078	Mound Plant Waste Acceptance Criteria
P079	Management of Hazardous Waste, Radioactive Mixed Waste, Trash and Recyclable Metals
P081	Approved Site Treatment Plan for Mixed Wastes at the Mound Facility
P086	Mound Laboratory Environmental Plutonium Study
P095	List and directory of chemicals and MSDS sheets
P096	1996 and 1998 Chemical Inventory and 1991 Carcinogen list
P097	An Early History of U.S. Radioisotope Thermoelectric Generators
P098	Verification Reports
P099	WD Soil Removal Project
P100	Mound Quality Control Plan for the Control of Radioactive Waste

Source Document Number	Title
P105	Revision of the Off-Site Packaging Criteria for Receipt of Transuranic Waste at the INEL RWMC
P109	US Department of Transportation Exemption for the ATMX Railcar
P111	Site Treatment Plan for the Mixed Wastes at the Mound Facility Miamisburg, Ohio, Background and Plan Volumes
P115	1st 8 Shipments of Uniform Hazardous Waste Manifest
P116	Nuclear Power in Space
P117	Radioactive Waste Procedures-Loading/Sealing Transuranic Waste Destined for SRS in Boxes
P120	Radioactive Waste Procedures-Loading/Sealing Transuranic Waste Destined for SRS in Drums
P121	SRS Waste Acceptance Criteria Manual, 1S, E-Area TRU Pads Transuranic Waste Acceptance Criteria
P122	Acceptable Knowledge Summary for Solidified Acid/Caustic Waste (BN835)
P123	Acceptable Knowledge Document for INL Stored Transuranic Waste – Mound Plant Waste
P124	Absorbing Containerized Liquids
P125	Shipment Preparation for TRU Containers to SWMF
P126	Absorbing Containerized Liquids
P127	Transuranic (TRU) Waste Repackaging in H-Canyon
P128	F Canyon Container Transfer
P129	Standard Waste Box Operations
U001	2990 Information on Shipments to SRS
U002	Trash Categories/Content Codes and Waste Categories
U003	List of Chemicals and Materials in TRU Waste Content Codes
U007	Content Code Assessments for INEL Contact Handled Stored TRU Waste
U015	Memorandum to E.L. Albenesius, Re: Description of Mound and LASL Sold ^{238}Pu Waste Stored at SRP
U018	UGL Action Memo-Removal Action of Soil & Underground Waste Transfer Lines Leading to WD Building
U019	Waste Management Instruction-Packaging of Highly Contaminated Soil from PRS 438
U020	2990 Information for Additional Containers