ENTERED

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

JAN 17 2012

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

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

Dear Mr. Kieling:

The Department of Energy, Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number SR-AGNS-HOM, *Solidified Inorganics from the Barnwell Nuclear Fuel Plant*, for the Central Characterization Project at the Savannah River Site.

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

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

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

Sincerely,

Edward Ziemianski
Interim Manager

Enclosure

120112

CBFO:NTP:JRS:PG:12-0409:UFC 5900.00

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 (Example)

(1) Waste Stream Profile Number: SR-AGNS-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): 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; CCP-AK-SRS-11, Central Characterization Project Acceptable Knowledge Summary Report for Allied-General Nuclear Services Barnwell Nuclear Fuel Plant Transuranic Waste Stored at Savannah River Site Waste Streams: SR-AGNS-HET SR-AGNS-HOM Revision 2 November 1, 2011					
(8) Did your facility generate this waste? YES			NO	X	
(9) If no, provide the name and EPA ID of the original generator: Allied General Nuclear Services (Barnwell Nuclear Fuel Plant) South Carolina EPA ID SCD073706715					
Waste Stream Information					
(10) WIPP ID: SR-AGNS-HOM			(11) Summary Category Group: S3000, Homogeneous Solids		
(12) Waste Matrix Code Group: Solidified Inorganics			(13) Waste Stream Name: Solidified Inorganics from the Barnwell Nuclear Fuel Plant		
(14) Description from the ATWIR: This waste is comprised of aqueous liquids solidified with lime and cement in a 55-gallon drum and aqueous liquid that had been absorbed using Florco-X and then later solidified with cement and water inside a 55-gallon drum.					
(15) Defense TRU Waste: YES	X	NO			
(16) Check One: CH	X	RH			
(17) Number of SWBs - N/A (17a) Number of SLB2	(18) Number of Drums 16 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, D011 and F005					
(22) Applicable TRUCON Content Numbers: SQ 111/211, SQ 154					
(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-11, Revision 2, November 1, 2011, Figures 1, 2, 3 and 4					
(23B) Facility mission description: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.1					
(23C) Description of operations that generate waste: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.3					
(23D) Waste identification/categorization schemes: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.5					
(23E) Types and quantities of waste generated: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.7					

(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.6			
(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-11, Revision 2, November 1, 2011, Section 6.1			
(25B) Waste stream volume and time period of generation: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 6.2			
(25C) Waste generating process description for each building: CCP-AK-SRS-11, Revision 2, November 1, 2011, 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-11, Revision 2, November 1, 2011, Section 6.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See "Table 2. Waste Stream SR-AGNS-HOM Waste Material Parameter Estimates" in the Summation of Aspects of AK Summary report SR-AGNS-HOM			
(26) Which Defense Activity generated the waste:			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management		Defense nuclear material production
X	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation:			
(27A) Process design documents: See M029 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27B) Standard operating procedures: See M029, P017, P018, P019, P033, P036, P044, P064, P066, P087, P088 and P089 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27C) Safety Analysis Reports: NA			
(27D) Waste packaging logs: See M010 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27E) Test plans/research project reports: See M029 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27F) Site databases: See M033 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27G) Information from site personnel: NA			
(27H) Standard industry documents: NA			
(27I) Previous analytical data: See C081 and M037 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27J) Material safety data sheets: See M039 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27K) Sampling and analysis data from comparable/surrogate Waste: NA			
(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: 11/10/2011

Reviewed by STR (if necessary): YES [X] N/A [ ] Date: 1/08/2011

Waste Stream Profile Form Certification:

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

Signature of Site Project Manager	Beverly Schrock Printed Name	1/5/12 Date

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

CHARACTERIZATION INFORMATION SUMMARY

WSPF # SR-AGNS-HOM

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream #	SR-AGNS-HOM	Lot #:	1
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Richard Kantrowitz	Date:	12/5/2011

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

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

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 11	07/20/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
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
CCP-TP-053	Rev. 5	11/16/06	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-048	Rev. 11	02/19/08	CCP Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 10	11/16/06	CCP Mobile IQ3 System 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. 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-002	Rev. 19	12/22/06	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. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-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
CCP-TP-030	Rev. 24	08/20/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/07	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-001	Rev. 16	10/31/07	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-002	Rev. 20	11/02/07	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-AGNS-HOM Lot # 1

Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes
SR520501	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520502	SRNDA1400	SRSRTR0119	N/A	N/A	
SR520503	SRNDA1492	SRSRTR0153	N/A	N/A	
SR520524	SRNDA1430	SRSRTR0153	N/A	N/A	
SR520530	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520534	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520539	SRLBC0160	SRSRTR0168	N/A	N/A	
SR520548	SRNDA1636	SRSRTR0315	N/A	N/A	
SR520552	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520562	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520563	SRNDA1464	SRSRTR0194	N/A	N/A	
SR520564	SRNDA1429	SRSRTR0179	N/A	N/A	

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2011
Date

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: SR-AGNS-HOM **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	-1.66	-1.73	0.06	-1.69	10	2.30		
Bromoform	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Carbon Disulfide	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Carbon Tetrachloride	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Chlorobenzene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Chloroform	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1-Dichloroethylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,2-Dichloroethane	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Ethyl benzene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Methylene chloride	Log	0	5	-1.26	-1.33	0.05	-1.29	10	2.30		
m,p-Xylene[d]	No	0	5	0.38	0.36	0.02	0.37	10	N/A		
o-Xylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1,2,2-Tetrachloroethane	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Tetrachloroethylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Toluene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
trans-1,2-Dichloroethylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1,1-Trichloroethane	Log	1	5	-0.51	-1.47	0.54	-1.10	10	2.30		
Trichloroethylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1,2-Trichloroethane	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Trichlorofluoromethane	Log	0	5	-1.26	-1.33	0.05	-1.29	10	2.30		
Vinyl chloride	Log	0	5	-1.66	-1.73	0.06	-1.69	4	1.39		
Acetone	SQRT	3	5	3.16	2.15	0.81	2.70	100	10.00		
Butanol	Log	5	5	5.63	4.08	1.24	4.93	100	4.61	Yes	(2)
Methanol	No	2	5	8.40	3.59	3.27	5.83	100	N/A		
Methyl ethyl ketone	Log	0	5	1.24	-0.18	0.79	0.37	100	4.61		

CC5005

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: SR-AGNS-HOM **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	Log	0	5	1.24	-0.18	0.79	0.37	10	2.30		
Isobutanol	Log	0	5	1.95	0.52	0.80	1.07	100	4.61		
Pyridine	Log	0	5	1.24	-0.18	0.79	0.37	100	4.61		
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-SOIL 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-SOIL 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 apply.

[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) EPA HWN F003 is not assigned to this waste stream for Butanol because the waste is not liquid and is therefore not ignitable. This is consistent with acceptable knowledge.

CIS006

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2011
Date

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

WSPF #: SR-AGNS-HOM **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		
1,4-Dichlorobenzene [a]	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
2,4-Dinitrophenol	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
2,4-Dinitrotoluene	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
Hexachlorobenzene	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
Hexachloroethane	No	0	5	0.10	0.10	0.00	0.10	2.6	N/A		
2-Methylphenol (cresols)	No	0	5	0.10	0.10	0.00	0.10	2.6	N/A		
3&4 -Methylphenol (cresols)	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
Nitrobenzene	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
Pentachlorophenol	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
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.)

CIS007

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2011
Date

CCP Solids Analysis Metals UCL_{90} Evaluation Form

WSPF #: SR-AGNS-HOM **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	No	2	5	2.70	1.92	0.68	2.38	100	N/A		
Arsenic	SQRT	5	5	4.69	4.03	0.88	4.63	100	10.00		
Barium	No	5	5	150.00	124.00	41.59	152.52	2000	N/A		
Beryllium	No	5	5	2.90	2.46	0.71	2.95	100	N/A		
Cadmium	No	2	5	0.66	0.38	0.24	0.55	20	N/A		
Chromium	No	5	5	75.00	62.40	24.33	79.08	100	N/A		
Lead	Log	5	5	3.18	2.27	0.67	2.73	100	4.61		
Mercury	SQRT	5	5	0.28	0.18	0.08	0.23	4	2.00		
Nickel	No	5	5	25.00	20.00	5.29	23.63	100	N/A		
Selenium	SQRT	0	5	1.52	0.98	0.35	1.23	20	4.47		
Silver	No	0	5	0.18	0.10	0.06	0.14	100	N/A		
Thallium	No	3	5	0.40	0.40	0.00	0.40	100	N/A		
Vanadium	No	5	5	70.00	59.40	18.19	71.87	100	N/A		
Zinc	No	5	5	64.00	47.20	13.50	56.46	100	N/A		

Comments:

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

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2011
Date

CI5008

CCP Solid VOCs Summary Data

Waste Stream Number SR-AGNS-HOM 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 12/5/2011

CIS009

CCP Solid SVOCs Summary Data

Waste Stream Number SR-AGNS-HOM Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
N-Nitrosodimethylamine	1.70	1	20.00%
bis(2-ethylhexyl)phthalate	0.64	1	20.00%
Ethanol, 2-ethoxy-	2.70	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:

SPM Signature Date 12/5/2011

 CIS010

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: SR-AGNS-HOM 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-AGNS-HOM.

Site Project Manager Signature	Richard Kantrowitz Printed Name	12/5/2011 Date

CIS011

CCP Reconciliation with Data Quality Objectives

WSPF# SR-AGNS-HOM Lot # 1

Sampling Completeness

RTR:

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

NDA

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

HSG

Number of Valid Samples: 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-AGNS-HOM 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-AGNS-HOM 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:
None

Signature of Site Project Manager — Richard Kantrowitz (Printed Name) — 12/5/2011 (Date)

SUMMATION OF ASPECTS OF ACCEPTABLE KNOWLEDGE SUMMARY REPORT: WASTE STREAM SR-AGNS-HOM

Overview

Waste stream SR-AGNS-HOM is contact-handled (CH) transuranic (TRU) solidified inorganics waste generated by the Hot and Cold Laboratory Area (HCLA) at the Barnwell Nuclear Fuel Plant (BNFP) in Barnwell, South Carolina. The BNFP is a commercial facility previously owned by Allied-General Nuclear Services (AGNS). This waste was transferred to the Savannah River Site (SRS) in 1983.

The BNFP was designed and constructed to process spent nuclear fuel from light water-cooled commercial power reactors, but before construction and licensing were completed, President Carter's 1977 executive order banned commercial reactor fuel reprocessing. Hoping the federal government would reverse its decision; the BNFP tested the various parts of the plant and undertook extensive research and development (R&D) work for the Department of Energy (DOE) in order to utilize the plant engineers and laboratory staff. The scope of the DOE contracts involved conducting studies and research concerning the utilization of the BNFP in support of the nonproliferation objectives of the United States, including the investigation and evaluation of proliferation-resistant alternative fuel cycle technologies. The HCLA contained numerous analytical and engineering laboratories built to provide services for various chemical and radionuclide analyses associated with the uranium and plutonium separations processes. Shut-down and partial decontamination and decommissioning (D&D) of the plant was conducted in 1983.

The special nuclear material used at BNFP was supplied by SRS primarily for investigation and evaluation of proliferation-resistant alternative fuel cycle technologies and related safeguards activities. Therefore, the atomic energy defense activity that applies to TRU wastes generated at the BNFP is "defense nuclear materials security and safeguards and security investigations."

This Summation of Aspects of the Acceptable Knowledge (AK) Summary Report includes information to support Waste Stream Profile Form number SR-AGNS-HOM for CH TRU solidified inorganics waste. The primary source of information for this summation is CCP-AK-SRS-11, *Central Characterization Project Acceptable Knowledge Summary Report For Allied-General Nuclear Services Barnwell Nuclear Fuel Plant Transuranic Waste Stored at Savannah River Site, Waste Streams SR-AGNS-HET and SR-AGNS-HOM*, Revision 2, November 1, 2011. CCP-AK-SRS-11 includes information obtained from various sources, including R&D project reports, operating procedures, work requests, waste management and packaging procedures, D&D plans and reports, chemical inventories, waste packaging and shipping forms, previous radiography data, and various correspondence.

Waste Stream Identification Summary

Waste Stream Name:	Solidified Inorganics from the Barnwell Nuclear Fuel Plant
Waste Stream Number:	SR-AGNS-HOM
Dates of Waste Generation:	1982 – 1983
Waste Stream Volume – Current:	16 55-gallon drums
Waste Stream Volume – Projected:	0 55-gallon drums
Summary Category Group	S3000, Homogeneous Solids
Waste Matrix Code Group	Solidified Inorganics

Waste Matrix Code:	S3150, Solidified Homogeneous Solids
TRUPACT-II Content (TRUCON) Codes:	SQ 111, SQ 211, SQ 154
Annual Transuranic Waste Inventory Report Identification Number:	SR-AGNS-HOM

Waste Stream Description and Physical Form

Waste stream SR-AGNS-HOM consists of aqueous liquids (e.g., nitric acid, hydrochloric acid, hydroxylamine nitrate, sodium carbonate) solidified with lime and cement, or aqueous liquids that had been absorbed using Florco-X and then later solidified with cement and water. Florco-X is a fuller's earth absorbent described as hydrous magnesium aluminum silicate.

The waste materials that comprise waste stream SR-AGNS-HOM have common physical form, contain similar hazardous constituents, and were generated from a single process or activity and is therefore a single waste stream. The activity in the HCLA that generated TRU waste was studies and research in support of the nonproliferation objectives of the United States and associated operations (i.e., analytical chemistry, maintenance, and facility cleanup operations).

Point of Generation

Location

Waste stream SR-AGNS-HOM was generated at the BNFP in Barnwell, South Carolina. This waste was transferred to the Savannah River Site (SRS) in 1983.

Area and/or Buildings of Generation

Waste stream SR-AGNS-HOM was generated in the HCLA Building (References D022, D029, D030). Glovebox A in the Alpha Lab handled waste solutions from the Alpha Lab tests. The Second Floor Radiochemistry Lab Number 2 and Plutonium Products Lab were also used on occasion to solidify TRU waste from various HCLA programs (References D002, D019, D024).

Generating Processes

Description of Waste Generating Processes

Aqueous liquid wastes were generated between 1980 and 1982 primarily by R&D activities in the Alpha Lab involving neptunium extraction and the partitioning of plutonium from uranium. The aqueous waste solutions from the Alpha Lab primarily contained nitric acid, nitrous acid, ascorbic acid, hydrazine, and hydroxylamine nitrate. Aqueous wastes, such as those containing fluoride and oxalate, were also generated by the analytical laboratories (References D004, D009, M030, P010, P056, P057 and P059). For the aqueous liquid wastes generated in 1980, sodium hydroxide was added to acidic waste to adjust the solution to pH 5. The neutralized solution was absorbed with Florco-X in 26-liter polyethylene bottles. Two of these 26-liter bottles were then packaged in a 55-gallon drum. The bottles were visually inspected for dryness and packaged in galvanized 55-gallon drums with 90-mil liners (References C074, C081, P009 and P011).

This aqueous waste absorbed on Florco-X absorbent did not conform to the WIPP criteria in the early 1980s, but required a homogeneous solid matrix form for this type of waste (References C049, C051). In 1983, the absorbed liquids were solidified with cement and water inside a 30-gallon drum. First, a steel vane was welded to the inside of the 30-gallon drum, perpendicular to the drum circumference. This vane would facilitate mixing of the contents on a drum roller. Dry Portland cement was added to

the 30-gallon drum and the Florco-X and aqueous liquid mixture (the contents of 2 26-liter bottles) were emptied into the drum. Water and/or additional TRU-contaminated aqueous waste, including decontamination solutions (e.g., nitric acid, hydrochloric acid, sodium carbonate, and water) generated during facility cleanup in 1983, were then added to the drum. The lid was placed on the drum and the contents were mixed on a drum roller. Once the mixture cured, the 30-gallon drum was placed into a 55-gallon drum lined with a rigid polyethylene liner (References C047, C069, D026, D029, D038, M027, M064, P040, P047, P050 and P065).

For the aqueous liquid wastes generated from R&D contract work in 1981 and 1982, the waste was not absorbed on Florco-X but rather was immobilized directly in three 55-gallon drums lined with a rigid polyethylene liner and a polyethylene drum bag. The materials needed consisted of lime (calcium oxide), cement, and liquid. Acidic wastes that were to be solidified were first neutralized with lime or a sodium hydroxide solution. The lime was added to the drum followed by the liquid and the contents were mixed. The cement was then added and mixed until blended. Additional liquid or cement may have been added to achieve the correct consistency. After the mixture was allowed to cure, it was inspected for free liquid. If liquid was observed, additional cement was added to solidify the liquid (References C074, P012 and P053). Plastic bags used for contamination control were also placed on top of the cemented waste. The three drums are approximately two-thirds filled with a solid yellowish concrete (Reference C050).

Waste Stream Material and Chemical Inputs

Table 1 identifies the toxicity characteristic and F-listed constituents in waste stream SR-AGNS-HOM.

Table 1 – Toxicity Characteristic and F-Listed Constituents Waste Stream SR-AGNS-HOM

Constituent	CAS #	EPA HWNs
Arsenic	7440-38-2	D004
Barium	7440-39-3	D005
Cadmium	7440-43-9	D006
Chromium	7440-47-3	D007
Lead	7439-92-1	D008
Mercury	7439-97-6	D009
Silver	7440-22-4	D011
Pyridine	110-86-1	F005

RCRA Determinations

Historical Waste Management

Waste stream SR-AGNS-HOM was not characterized and managed in accordance with RCRA or the South Carolina Hazardous Waste Management Regulations (SCHWMR). TRU waste generated in the early-1980s was not subject to RCRA-hazardous waste regulations, and there was no requirement in BNFP procedures from 1982 and 1983 to assign EPA hazardous waste numbers. SRS has managed containers in this waste stream as nonhazardous waste; however, as described below, there is evidence that the waste contains RCRA-hazardous constituents (References P006, P007, P045, P050, P053 and P076).

Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

The waste material in this waste stream does not exhibit the characteristic of ignitability as defined in 40 CFR 261.21. The waste is not a liquid, an ignitable compressed gas, or an oxidizer, and it is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. TRU waste generated in the early-1980s was packaged according to plans and procedures to meet SRS waste acceptance criteria. Materials prohibited by procedure from TRU waste included pyrophorics, flammables, compressed gases, and free flowing liquid (References C007, C072, P024, P045, P053). This waste is not an oxidizer because oxidizing compounds such as nitric acid and hydroxylamine nitrate were solidified. Waste stream SR-AGNS-HOM is therefore not ignitable (D001).

The waste material in this waste stream does not exhibit the characteristic of corrosivity as defined in 40 CFR 261.22. TRU waste generated in the early-1980s was packaged according to plans and procedures to meet SRS waste acceptance criteria. Materials prohibited by procedure from TRU waste included corrosives and free flowing liquid (References C007, C066, C067, C072, P024, P045, and P053). Acidic liquids (e.g., nitric acid, nitrous acid, hydrochloric acid) were neutralized with lime or a sodium hydroxide solution prior to being solidified (References P009, P012). Waste stream SR-AGNS-HOM is therefore not corrosive (D002).

The waste material in this waste stream does not exhibit the characteristic of reactivity as defined in 40 CFR 261.23. The waste is stable and will not undergo violent chemical change. The waste 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 reactive cyanide or sulfide compounds. There is no indication that the waste contains explosive materials, and it is not capable of detonation or explosive reaction.

TRU waste generated in the early-1980s was packaged according to plans and procedures to meet SRS waste acceptance criteria. Explosives were expressly prohibited from TRU waste (References C007, C072, P024 and P053). Anhydrous hydrazine is explosive in contact with air; however, the BNFP used hydrazine hydrate (33 – 37 weight percent hydrazine) which is not reactive (Reference P087). Reactive metals and reactive cyanide compounds were not identified in the AK documentation reviewed. Sodium sulfide solutions were made up for use in a procedure for spectrophotometric determination of sulfide in water (Reference P087). The solidified aqueous wastes are potentially contaminated with very trace quantities sodium sulfide from this procedure but this will not cause this waste stream to be reactive. Waste stream SR-AGNS-HOM is therefore not reactive (D003).

The containers in the waste stream will be evaluated in accordance with the WIPP-WAP using Real-Time Radiography (RTR) and/or Visual Examination (VE) prior to shipment to ensure the waste is not ignitable, corrosive, or reactive.

Toxicity Characteristic

Waste stream SR-AGNS-HOM meets the definition of toxicity for metal compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24). The solidified wastes were derived from the treatment of aqueous liquids that may contain toxicity characteristic metals based on the following identified uses/sources:

- Arsenic is a component of Arsenazo I and Arsenazo III which were used in a lab procedure for the titrimetric determination of metals in an aqueous sample. Sodium arsenite was used in a lab procedure for the spectrophotometric determination of phenolic compounds in water (References P046, P087).

- Barium carbonate was used to prepare analytical standards (References C064). Barium chloride was used in a lab procedure for nitric acid specification analysis (References P046, P087).
- Cadmium carbonate and cadmium nitrate were listed on a 1983 HCLA chemical inventory (Reference P046).
- Potassium dichromate was used for titration in the Davies-Gray method for uranium determination, and in a lab procedure for the determination of plutonium by amperometric titration with iron (References D014, P087). Chromium is also a corrosion product of stainless steel (Reference C026). The chromium compounds chromic nitrate, chromium trioxide, and sodium chromate were listed on a 1983 HCLA chemical inventory (Reference P046).
- Lead nitrate and lead oxide were listed on a 1983 HCLA chemical inventory (Reference P046).
- Mercury was used in lab procedures for the determination of mercury by atomic absorption and for titrimetric determination of metals by sodium-cerium EDTA replacement EDTA titrimetry. Mercuric thiocyanate was used in a lab procedure for the spectrophotometric determination of chloride ion in water. A mercurous sulfate reference electrode was used in a lab procedure for the determination of plutonium by amperometric titration with iron (Reference P087). Mercuric chloride, mercuric iodide, and mercuric oxide were listed on a 1983 HCLA chemical inventory (Reference P046).
- Silver nitrate was used in a lab procedure for spectrographic determination of impurities in plutonium (References P046, P087).

The disposition of the aqueous liquid wastes from these laboratory analyses was not specified, but they would likely have been solidified as aqueous waste. Since data are not available that demonstrate the concentration of these metal constituents is less than the toxicity characteristic regulatory level, EPA hazardous waste numbers D004, D005, D006, D007, D008, D009, and D011 are assigned to this waste stream consistent with RCRA.

Waste stream SR-AGNS-HOM does not exhibit the characteristic of toxicity for organic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24). Carbon tetrachloride was used as an extractant in the spectrophotometric determination of phenolic compounds in water. Chloroform was used in lab procedures for the spectrographic determination of refractory elements in uranyl nitrate and volumetric determination of fluorine in fluorinator exit gas. 1,1-Dichloroethylene was used in a lab procedure for the determination of Iodine-129 (Reference P087). These organics compounds are insoluble or only slightly soluble in water and will not be present in solidified aqueous waste. Therefore, EPA hazardous waste numbers D019, D022, or D029 are not assigned to this waste stream. Pyridine was identified in the waste (see below); however, EPA hazardous waste number D038 is not assigned to the waste stream because the more specific F005 EPA hazardous waste number is assigned for this compound.

Listed Waste

F-Listed Waste

Waste stream SR-AGNS-HOM is an F-listed hazardous waste because the solidified wastes were derived from the treatment of aqueous liquids that were mixed with hazardous wastes from non-specific sources as listed in 40 CFR Part 261, Subpart D (40 CFR 261.31).

- Pyridine was used as a solvent in a lab procedure for the titrimetric determination of metals in an aqueous sample. About 3 ml of pyridine (which is miscible in water) was added to an aqueous sample that was diluted in 125 ml of water. The disposition of the spent liquid was not specified but likely would have been collected and solidified as aqueous waste (Reference P087).

Therefore, waste stream SR-AGNS-HOM is assigned EPA hazardous waste number F005 consistent with RCRA.

The F002-listed solvent 1,1,2-trichloro-1,2,2-trifluoroethane was used to wash metallic samples to remove any carbon containing oils or greases (Reference P087). The method used to wash the samples is not specified, but because they were analyzing small metal samples, it is assumed that wipes and small amounts of the solvent were brought into the glovebox for this purpose, and no documentation has been identified indicating any solvent spills (Reference P087). Scouring pads and commercially available cleaners (e.g., Aero-Brite) and wipes were used for subsequent decontamination of glovebox interiors. The scouring pads and wipes would have been included in the debris waste stream. Therefore, 1,1,2-trichloro-1,2,2-trifluoroethane would not be present in this waste stream. Raycohesive B-84, which was an adhesive used for sealing the drum liner lid, contains the F002-listed solvents methylene chloride and 1,1,1-trichloroethane (References M039, P006, P076). According to the WIPP-WAP, solvents associated with waste packaging do not meet the definition of an F-listed waste. Therefore, waste stream SR-AGNS-HOM is not an F002-listed hazardous waste.

The F001-listed solvents carbon tetrachloride and 1,1,2-trichloro-1,2,2-trifluoroethane were used as solvents in the HCLA analytical laboratories (Reference P087). However, 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. This waste was not generated from large-scale degreasing operations, and therefore, waste stream SR-AGNS-HET is not an F001- listed hazardous waste.

Several of the F003-listed solvents are miscible or moderately soluble in water. In a lab procedure for the titrimetric determination of metals in an aqueous sample, the sample was diluted with acetone. A nitric acid-methanol eluting solution was used in an anion exchange separation lab procedure (Reference P087). The disposition of the spent liquid was not specified but likely would have been collected and solidified as aqueous waste. However, F003-listed solvents are listed solely for ignitability, and this waste stream does not exhibit the characteristic of ignitability because the solvents are not in liquid form. Therefore, waste stream SR-AGNS-HOM is not an F003-listed hazardous waste.

Toluene was used as a solvent in lab procedures for liquid scintillation counting. The scintillation cocktail containing toluene is organic and would not be present in solidified aqueous waste. However, toluene along with several other chemicals was also added to an aqueous sample in a separatory funnel. The contents were shaken to allow separation of the aqueous and organic phases, and the aqueous phase was discarded (Reference P087). The organic phase would not be present in solidified aqueous waste. The disposition of the aqueous liquid was not specified, but would likely have been collected and solidified as aqueous waste. According to EPA, the aqueous phase from organic liquid-liquid extraction that contains small amounts of organic solvent (toluene in this case) is not regulated as an F-listed spent solvent.

K-Listed Wastes

Waste stream SR-AGNS-HOM does not include any of the manufacturing process wastes from the specific industries or sources listed in 40 CFR 261.32. Therefore, waste stream SR-AGNS-HOM is not a K-listed hazardous waste.

P and U-Listed Wastes

Waste stream SR-AGNS-HOM does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33). Numerous U- and P-listed chemicals were used in the HCLA; however, according to

procedure, laboratory chemicals were packaged separately from other waste and shipped off-site for disposal (Reference P046). None of the other AK documentation reviewed indicates that pure product or unused chemicals were solidified (Reference M015).

One of the U-listed chemicals used in the HCLA was hydrofluoric acid. Small quantities of hydrofluoric acid (typically in combination with other acids such as hydrochloric acid) was used for dissolving plutonium oxide, complexing plutonium in solution, eluting plutonium from an ion-exchange column, and polymerization of plutonium ions (References D047, D051, D080, P087). Spent hydrofluoric acid or acid mixtures containing hydrofluoric acid may have been solidified. According to procedure, acids were neutralized before being solidified (References P009, P012). Based on the AK documentation reviewed, the hydrofluoric acid does not meet the definition of a U-listed waste, and therefore, EPA hazardous waste number U134 is not assigned to this waste stream.

A small amount of beryllium oxide was identified in the emission spectroscopy lab, but there is no evidence of unused beryllium powder in this waste stream (References D001, M054, P005, P020, P046). Therefore, EPA hazardous waste number P015 is not assigned to this waste stream.

Polychlorinated Biphenyls (PCBs)

This waste stream does not contain PCBs greater than 50 ppm, and therefore, is not regulated as a TSCA waste under 40 CFR 761. This waste stream consists of solidified aqueous liquids which is not a source of PCBs.

Prohibited Items

Un-containerized liquids are relatively common in a solidified liquid waste; however, limited RTR has been conducted by SRS on this waste stream and observable liquids were not identified (Reference M009).

Based on limited RTR conducted by SRS on this waste stream, a hole was identified in the lid of one inner 30-gallon drum, but a hole could not be seen in another 30-gallon drum (Reference M009). The AGNS procedure for this waste did not indicate that a hole was in the 30-gallon drum lid (Reference P047). Any 30-gallon drum that RTR and/or VE identify with no hole in the lid is considered a sealed container greater than four liters and will be vented.

Certified RTR and/or VE are performed by CCP to ensure liquids do not exceed the amount allowed by the WIPP-WAP, the absence of ignitable compressed gases and explosives, and other prohibited items are not shipped to WIPP. Any container identified with liquids in excess of the amount allowed by the WIPP-WAP, unpunctured aerosol cans, compressed gas cylinders, or explosives will be segregated from the waste stream and will not be eligible for disposal at WIPP until the prohibited materials are removed (References M009, P022).

Method for Determining Waste Material Parameter Weights per Unit of Waste

For waste stream SR-AGNS-HOM, only the weight of organic material was estimated by the generator and documented on the TRU Waste Data Package/Certification form. For each of the drums in this waste stream, the weight of organic material was reported as 5 kilograms (kg) which is the weight of the 55-gallon polyethylene drum liner (Reference M027). The drum liner is plastic packaging and is not included in plastic (waste materials). The calculated weight percent of iron-based metal is based on the weight of the 30-gallon steel inner drum. For the direct-load 55-gallon drums, 0.5 kg of plastic (waste materials) is assigned to account for the polyethylene liner bag that is in contact with the waste. The remaining weight is assigned to inorganic matrix because the waste is

absorbed/cemented aqueous liquids. The results of the waste material parameter analysis are presented in Table 2. This evaluation is documented in a memorandum as required by CCP-TP-005.

Table 2 – Waste Stream SR-AGNS-HOM Waste Material Parameter Estimates

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	7.0%	0% – 10.8%
Aluminum-based Metals/Alloys	0.0%	0% – 0.0%
Other Metals	0.0%	0% – 0.0%
Other Inorganic Materials	0.0%	0% – 0.0%
Cellulosics	0.0%	0% – 0.0%
Plastics (waste materials)	0.1%	0% – 0.2%
Rubber	0.0%	0% – 0.0%
Organic Matrix	0.0%	0% – 0.0%
Inorganic Matrix	92.9%	89.2% – 99.8%
Soils/Gravel	0.0%	0% – 0.0%

List of Any AK Sufficiency Determinations Requested for the Waste Stream

No AK Sufficiency Determinations were requested for this waste stream.

Transportation

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

Beryllium

A review of available AK source documentation identified a small amount of beryllium oxide in the emission spectroscopy lab, but there is no evidence of beryllium in the TRU waste (References D001, M054, P005, P020 and P046). Therefore, beryllium will not be present in amounts greater than one percent by weight of the waste in each drum.

Radionuclide Information

The two most prevalent radionuclides, by mass, in this waste stream are U-238 and Pu-239. The isotopes expected to be present in this waste stream are listed in Table 3.

Table 3 – Waste Stream SR-AGNS-HOM Radiological Characterization

Isotope	Total Radionuclide Wt%[1]	Radionuclide Wt% Range for Individual Containers[2]	Total Radionuclide Ci%[3]	Radionuclide Ci% Range for Individual Containers[4]	Suspected Present (Yes/No)
WIPP Required Radionuclides					
Am-241	Not reported	Not reported	Not reported	Not reported	Yes [7]
Pu-238	0.03%	Trace - 0.46% [6]	2.00%	1.06% - 2.10%	Yes

Isotope	Total Radionuclide Wt%[1]	Radionuclide Wt% Range for Individual Containers[2]	Total Radionuclide Ci%[3]	Radionuclide Ci% Range for Individual Containers[4]	Suspected Present (Yes/No)
Pu-239	**7.13%**	0.67% - 89.70% [6]	1.81%	0.46% - 1.65%	Yes
Pu-240	1.62%	0.17% - 21.62% [6]	1.51%	0.38% - 1.53%	Yes
Pu-242	0.10%	0.01% - 2.46% [6]	Trace	Trace	Yes
U-233	0.06%	0.00% - 6.51%	Trace	0.00% - 0.03%	Yes
U-234	Trace [5]	0.00% - Trace	Trace	0.00% - Trace	Yes
U-238	**89.87%**	0.00% - 98.41%	Trace	0.00% - Trace	Yes
Cs-137	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [8]
Sr-90	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [8]
Additional Radionuclides					
Ce-144	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [9]
Nd-144	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [9]
Np-237	0.31%	0.00% - 26.04%	Trace	0.00% - Trace	Yes
Pu-241	0.23%	0.02% - 2.73%	94.67%	83.37% - 95.56%	Yes
Pu-244	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [10]
Th-228	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [11]
Th-230	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [11]
Th-232	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [11]
U-235	0.64%	0.00% - 0.71%	Trace	0.00% - Trace	Yes

1. This listing indicates the total weight percent of each radionuclide over the entire Waste Stream.
2. This listing is the weight percent 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.
3. This listing indicates the total activity (curie) percent of each radionuclide over the entire Waste Stream.
4. This listing is the curie percent range of each radionuclide on a container-by-container basis.
5. "Trace" indicates <0.01weight percent for that radionuclide.
6. These plutonium ranges were expanded to include BGR data (Reference M052) and information from other AK source documents.
7. Am-241 was not reported in assay data, but because every drum in this waste stream contains LWR plutonium, the waste will also contain Am-241 from Pu-241 decay.
8. Sr-90 cannot be quantified by gamma spectroscopy. Its value is calculated based on measured Cs-137 values. A Sr-90/Cs-137 scaling factor of 1.0 is used to calculate Sr-90.
9. Ce-144 and Nd-144 were not reported in waste assay data. A total of 30 micro-curies of Ce-144 was reported in source documentation (Reference M030). The Ce-144 has now decayed almost completely to Nd-144.
10. Pu-244 was not reported in waste assay data, but is assumed to be present in trace quantities based on source documentation (References D014, D049, D080).
11. Th-228, Th-230, and Th-232 were not reported in waste assay data, but are assumed to be present in trace quantities based on sample analysis in the engineering lab (Reference D081).

Payload management will not be implemented for this waste stream.

Attachment 1 - AK SOURCE DOCUMENTS

Source Document Number	Title	Document Number	Date
C006	Memo to J. B. Maier re: Instruments Used for the Assay of TRU Contaminated Job Control Waste	AS/82/252	11/29/1982
C007	Letter to Steve Tom re: AGNS/SRP TRU Waste Certification Meeting on October 7, 1982	N/A	1/6/1983
C008	Memo to B. D. Helton re: Inspection of AGNS TRU Waste Drums	830000196	5/17/1983
C009	Memo to G. A. Huff re: Decontamination of Pu Product Lab Gloveboxes	N/A	8/12/1983
C010	Letter to C. G. Halsted re: AGNS Transuranic Material Shipment to SRP	XHK-D2A-13	9/6/1983
C011	Memo to C. Joseph re: Special Nuclear Material -- HCLA	AS/83/153	10/18/1983
C012	Memo to G. A. Huff re: Plutonium Contaminated Areas in the Upper HCLA	AS/83/155	10/25/1983
C013	Memo to J. H. Ellis re: Decontamination and Salvage of the Nuclear Technology Laboratories	ODM/83/64	12/8/1983
C014	Memo to Jack Doody re: Gloveboxes	N/A	9/4/1984
C015	Memo to Forrow, Fritsch, & Smith re: Residual Plutonium at the Barnwell Nuclear Fuels Plant	Draft	2/8/1985
C016	Memo to Forrow, Fritsch, & Smith re: Residual Plutonium at the Barnwell Nuclear Fuel Plant	N/A	3/1/1985
C017	Letter to M. G. O'Rear re: DOE-HQ Request for Information on Greater-Than-Class-C (GTCC) > Class C Waste Stored/Disposed at Savannah River from Commercially Licensed Facilities	N/A	7/18/1988
C018	Memo to Mario Fiori and Greg Rudy re: Allied General Nuclear Services -- Barnwell Reprocessing Facility	N/A	~1995 - 1996
C019	Memo to Gregory Rudy re: Decontamination efforts at the Allied General Nuclear Services' Barnwell Nuclear Fuels Plant	N/A	6/23/1998
C021	Memo to Jim McNeil re: New Waste Estimates	AGNS-WMC-0	8/17/1999
C026	Notes from Weekly Telephone Conference Call Between AGNS and SRS	N/A	7/98
C029	Notes from a Telephone Conversation Between AGNS and SRS	N/A	5/19/1999
C030	Notes from a Telephone Conversation Between AGNS and SRS	N/A	7/21/1999
C031	Notes from a Telephone Conversation Between AGNS and SRS	N/A	8/18/1999

Source Document Number	Title	Document Number	Date
C032	Notes from a Telephone Conversation Between AGNS and SRS	N/A	10/13/1999
C034	Letter to Stan Massingill re: Comments on Waste Characterization and Certification Plan	N/A	7/1/1998
C035	Notes from a Telephone Conversation Between AGNS and SRS	N/A	9/1/1999
C036	Notes from a Telephone Conversation Between AGNS and SRS	N/A	11/10/1999
C037	Notes from a Telephone Conversation Between AGNS and SRS	N/A	11/24/1999
C038	Notes from a Telephone Conversation Between AGNS and SRS	N/A	12/8/1999
C039	Notes from a Telephone Conversation Between AGNS and SRS	N/A	1/5/2000
C040	Notes from a Telephone Conversation Between AGNS and SRS	N/A	2/2/2000
C041	Notes from a Telephone Conversation Between AGNS and SRS	N/A	2/16/2000
C042	Notes from a Telephone Conversation Between AGNS and SRS	N/A	3/1/2000
C043	Notes from a Telephone Conversation Between AGNS and SRS	N/A	3/29/2000
C047	Handwritten memo from G. M. Traverso to B. D. Helton re: AGNS Aqueous Waste	N/A	8/3/1983
C049	Memo from S. M. Tom to R. A. Scaggs re: AGNS Transuranic Waste Disposal Status at SRP	N/A	8/15/1983
C050	Memo from S. M. Tom to J. H. Hershey re: AGNS Solidified Waste Inspection Visit	N/A	11/19/1982
C051	Memo from S. M. Tom to O. M. Morris re: AGNS TRU Waste Certification Meeting	N/A	10/26/1982
C052	Memo from M. J. Sires to J. L. Womack re: Shipment of 20 grams of Np-237 as oxide to AGNS from SRS	N/A	Unknown
C054	Letter from James Maier to Steven Tom re: AGNS/SRP Waste Certification Information	N/A	7/20/1983
C055	Letter from William Knox to J. W. Geiger re: Letter, O.M. Morris to T. B. Hindman, September 30, 1981 Requesting Additional Information about the TRU Waste at AGNS	N/A	11/4/1981

Source Document Number	Title	Document Number	Date
C063	Memo from R. L. Morgan to James A. Buckham re: Survey Report No. 172 of Government-owned Accountable Materials at Allied General Nuclear Services	N/A	2/11/1982
C064	Memo from J. J. Jernigan to Ronald D. Simpson re: AGNS Shipment to SRS of Lab Standards and Special Nuclear Materials. Supporting memos are included	ACC/83/195; AGDE/83/141	8/29/1983
C066	Collection of Memos re: Disposal of Allied-General Nuclear (AGNS) TRU Waste	N/A	3/2/1982
C067	Memo from J. K. Epting to G. L. Albert re: Revisions to DPSON 241-FH-40, Packing TRU Waste and Sealing in 55-Gallon Drums	N/A	9/18/1980
C068	Memo from L. G. Jordan from J. B. Maier re: TRU Waste Drums and Isotopic Distributions of Drums	N/A	8/23/1983
C069	Memo from Monte Hawkins to W. F. Lawless re: Aqueous TRU Waste with attached handwritten notes and photo	SEC/83/141	8/16/1983
C072	Memo from Tom to Helton re: AGNS TRU Waste Certification Meeting on October 8, 1982	N/A	10/8/1982
C074	Letter from Maier to Tom re: AGNS/SRP Waste Certification Information re: TRU Waste Packaging	N/A	5/13/1983
C077	Memo from R. K. Sloan to File re: Consumption of DOE-Owned Plutonium and Neptunium	ACC/83/076	3/24/1983
C078	Memo from C. Joseph to L. L. Thomas re: Nuclear Materials Balance Summary	NMC/83/84	5/3/1983
C081	Letter to Steven Tom, SRP Waste technology, RE: AGNS/SRP Waste Certification Information	ADM W.2.a SEC/83/96	5/13/1983
C091	Memo to G.A. Huff, re: Plutonium Contaminated Areas in the Upper HCLA	AS/83/155	10/25/1983
C095	Memo re: Monthly Reports	N/A	1974 - 1983
D001	Waste Characterization and Certification Plan for the Decommissioning of the Barnwell Nuclear Fuel Plant	N/A	6/30/1998
D002	BNFP Decommissioning Plan - HCLA	N/A	1/19/1999
D004	Technical Progress Report for January 1979 - March 1979	AGNS-5900-TPR-1	4/25/1979
D009	Neptunium Recovery Laboratory Studies	AGNS-35900-3.3-33	10/1979
D012	Evaluation of an On-Line Alpha Monitor for Plutonium in a Uranium Product Organic Stream	AGNS-35900-2.4-83	7/1980

Source Document Number	Title	Document Number	Date
D014	Analytical Chemistry Methods Development and Quality Control Program	AGNS-35900-2.4-150	11/1981
D018	Nuclear Materials Control and Accountability	Survey No. 182	2/3/1984
D019	Hot and Cold Laboratory Area Facility Characterization Plan	N/A	~1999
D022	Waste Management Plan for the Decommissioning of the Barnwell Nuclear Fuel Plant	N/A	5/1998
D024	Historical Site Assessment of the Hot and Cold Laboratory Area at the Barnwell Nuclear Fuel Plant	N/A	1/1998
D026	Final Radiological Status Survey Report for the Barnwell Nuclear Fuel Plant, HCLA	Books 1, 2, & 3	5/2000
D029	1981 Decommissioning Study Supporting Documentation	N/A	6/1981
D030	Allied-General Nuclear Services Barnwell Nuclear Fuel Plant Decommissioning Plan	N/A	10/14/1983
D038	Final Report - Decommissioning of Lab Areas, transmitted by memo from G. A. Huff to J. H. Ellis on 12/15/1983	N/A	12/15/1983
D044	Electrolytic Studies Pertaining to the 1B Electropulse Column	AGNS-35900-3.3-30	9/1979
D045	Status of Analytical Measurement Technology Development at the BNFP	AGNS-35900-2.4-175	8/1982
D046	An Integrated Near Real-Time Plutonium Inventory System for LWR Reprocessing Solutions	AGNS-35900-CONF-137	7/1981
D047	The Determination of Free Acid in Plutonium (IV) Solutions	AGNS-35900-2.4-136	7/1981
D049	Plutonium Measurement Improvements by the Mass Spectrometric Technique	AGNS-35900-2.4-98	11/1980
D051	The Determination of Free Acid in Plutonium Solutions by Thermometric Titration	AGNS-35900-2.4-82	7/1980
D055	Determination of Free Acid in Plutonium (IV) Solutions - Thermometrically, Potentiometrically	AGNS-35900-CONF-146	9/1981
D076	FY-1983 BNFP Operational Test Program; Program Description and Evaluation	AGNS-11033-1.4-10	7/1983
D078	Technical Progress Report; April 1979 - June 1979	AGNS-35900-TPR-8	6/1979
D080	The Development and Modification of Analytical Chemistry Methods Required in the Separation of Nuclear Fuels	AGNS-35900-2.4-46	11/1979
D081	Site Characterization Report for the Hot and Cold Laboratories Area at the Barnwell Nuclear Fuel Plant	N/A	2/1998

Source Document Number	Title	Document Number	Date
DR001	Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution (Radionuclide Determination)	N/A	2/5/07
DR002	Attachment 11 - Acceptable Knowledge Source Document Discrepancy Resolution (EPA Hazardous Waste Number Assignment)	N/A	3/9/07
M001	Site Map, Allied-General Nuclear Services, Barnwell Nuclear Fuel Plant, Barnwell, South Carolina	N/A	Unknown
M003	Plutonium Recovery from Spent Fuel Reprocessing by Nuclear Fuel Services at West Valley, New York from 1966 to 1996	N/A	2/1996
M005	Barnwell Nuclear Fuel Plant Waste Management Program Overview	N/A	1997 – 1998
M006	Plan Ahead, Establish Support Lines, and be Prepared for Surprise, Lessons Learned from the BNFP Decommissioning Project	N/A	1/2001
M007	The Final Chapter, Planning the Decommissioning of the Barnwell Nuclear Fuel Plant	N/A	5/1999
M008	Closing the Book, The Decommissioning of the Barnwell Nuclear Fuel Plant	N/A	5/2000
M009	RTR Quick Screen Data Sheets	RTR-QS-01	10/20/2006
M010	TRU Waste Container Records (LLW) and Info Regarding FGE Calculations	N/A	~1/2000
M011	Drum List for UF-6 Laboratory	N/A	Unknown
M012	Letter Transmitting Nuclear Material Transaction Reports (From AGNS to DuPont, 1983)	N/A	4/14/1998
M014	Allied-General Nuclear Services Pu-Contaminated Waste Stored on TRU Pads, and map of TRU Pad 7 at SRS	N/A	Unknown
M015	Evaluation of Chemicals used the HCLA	N/A	1/29/2007
M023	Memos - TRU Waste Drum Inventory, Job-Control, and Job Control TRU Waste from NT- Alpha Lab	AS/82/154 and ET-82-244	7/19/1982, 8/13/1982
M025	MCS NDA BDRs for Drums	N/A	12/15/1999
M027	TRU Waste Data Package/Certification Copy and Drum Inspection Checklists	N/A	11/3/1982
M028	Nuclear Material Transaction Reports [741 Forms]	N/A	Various
M029	Sequential Log, Department of Energy Reports	N/A	~1982 - 1983
M030	Memo - TRU Waste Inventory for Disposal	ET/81/243	9/22/1981
M033	Allied General Nuclear Services Records Inventory and	N/A	11/29/2000

Source Document Number	Title	Document Number	Date
	Disposition Schedule		
M037	Transuranic Waste Container Characterization Data	N/A	Various
M038	Handwritten Dispositions of Radioactive Materials - both Receipts and Transfers	N/A	~1983
M039	MSDS Data Sheets	c5786	11/28/2005
M041	Nuclear Material Transaction Reports	N/A	1983 - 1984
M042	AGNS Work Request - HCLA Decontamination & Salvage Plan	AWR 15985	12/28/1983
M044	Meeting Minutes from Meeting between AGNS and SRS re: Waste from Barnwell Nuclear Fuel Plant Decommissioning W/ Power Point Presentation	N/A	6/10/1998
M046	AGNS/DOE Prime Contract Modifications	ET-78-C-09-1040	12/14/1977
M047	Power Point Presentation - BNFP Decommissioning Project Update	N/A	10/1999
M050	Abstract or Waste Management in the BNFP Decommissioning	N/A	4/25/2000
M052	Burial Ground Records	N/A	Various
M054	Shipment Checklist for AGNS Shipment NUMBER AGNS-060	N/A	3/15/2000
M055	Radioactive Waste Transfer Records	N/A	1980 - 1983
M057	Receiving of TRU Waste from Allied-General Nuclear Services - 3 revisions are attached	2-1017; 2-1017A; 2-1017B	1982 - 1983
M061	Status of Contract Closeout Activities Relating to Allied-General Nuclear Services (AGNS)	N/A	10/24/1983
M064	PowerPoint Presentation with handwritten notes: Solidification of AGNS Aqueous TRU Waste	N/A	~1983
M067	BNFP Building Floor Plans	N/A	~1983
M068	Specifications for Polyethylene Drum Liners and Galvanized Drums	N/A	~1983
M070	Purchase Requisition for 51 grams of Plutonium	0-2101	12/9/1980
M075	Pu Waste Drums	N/A	Unknown
P002	Process Solvent Shipment	45001, AWR NO.00001	10/5/1983
P004	Hazardous Waste and Mixed Waste Management	TR-101, Rev. 1	10/7/1999
P005	Transuranic Waste Management	TR-104, Rev. 3	6/22/1999
P006	TRU Waste Drum Disposal Preparation	N/A	10/29/1982
P007	Spec. Marking/TRU Radwaste Drums	N/A	9/10/1982

Source Document Number	Title	Document Number	Date
P009	AGNS Work Request for Liquid Pu Waste for HCLA, and Alpha Lab	WI-0, AWR: 14807	10/17/1980
P010	AGNS Work Request for Co-processing Purification Cycle Studies (Sub-Task 2.5.1.2 of FY 1981 Program Plan) for Alpha Lab	WI-1, AWR 14902	12/12/1980
P011	Repackaging Pu Contaminated Waste for HCLA and Alpha Lab	WI-1, AWR 15035	3/30/1981
P012	Solidification of Liquid Radwaste Generated in BNFP Laboratories	B-ACLOP-82A-5, Rev. 0	12/6/1979
P017	Decontamination of Transuranic Contaminated Surfaces	TR-300, Rev. 0	7/1/1998
P018	Decontamination of Transuranic Contaminated Equipment	TR-301, Rev. 0	7/10/1998
P019	Removal of Transuranic Contaminated Equipment and Material	TR-302, Rev. 0	7/13/1998
P020	BNFP Hazardous Materials Shipping Procedure	TR-105, Rev. 1	1/25/1999
P022	MRS Operations	SW15.3-SOP-MRSOPS-01	11/8/2006
P023	Memo from J. A. Schlesser to TRU Waste Coordinators transmitting procedure: Packing and Sealing TRU Waste in 55-Gallon Drums	DPSOL 241-FH-40, Rev. 4	12/1980
P024	Savannah River Plant Radiation and Contamination Control/Management of Solid Radioactive Waste	DPSPO 40	Various
P025	E-Area TRU Pads Transuranic Waste Acceptance Criteria	WAC 3.06, Rev. 6	2/12/1999
P028	Decon & Salvage Emission Spec, Room 46, Work Request	15985, Add 3	7/15/1983
P029	Decon & Salvage Spec. Prep. Lab, Room 49, Work Request	15985, Add. 4	7/15/1983
P033	Decon & Salvage Standards Lab, Work Request	15985, Add. 8	7/15/1983
P036	Decon & Salvage Radio Chem - NT, Work Request	15985, Add. 11	7/15/1983
P040	Decon & Salvage Alpha Laboratory, Work Request	15985, Add. 16	7/15/1983
P041	Decon & Salvage Pu Product Lab, Room 34, Work Request	15985, Add. 17	12/28/1983
P044	Decon & Salvage Counting Room, Work Request	15985, Add. 20	7/15/1983
P045	TRU Inventory Control & Waste Handling, Work Request	15985, Add. 21	7/15/1983
P046	Packaging of Non-Rad Chemicals, Work Request	15985, Add. 22	8/10/1983
P047	Solidification of TRU Waste as Concrete, Work Request	15985, Add. 25	8/17/1983
P049	Decontamination of Engineering Laboratory, Work Request	15985, Add. 29	10/26/1983

Source Document Number	Title	Document Number	Date
P050	HCLA Decontamination & Salvage Plan, Work Request	15985	6/15/1983
P053	Handling and Shipping of Low-Level Radioactive Wastes	A-ODAP-32, Rev. 5	6/30/1982
P054	Repacking of Solid TRU Waste into galvanized drums	14993	2/27/1981
P056	FY81 Program Plan	14959	1/23/1981
P057	FY81 Program Plan	14902	12/12/1980
P059	FY81 Program Plan, Ref NT-POP-501-10, NT-POP-501-11	15111	6/15/1981
P061	Work-Site Ventilation & Vacuum Cleaner HEPA Filter Change-out	TR-510, Rev. 4	6/22/1999
P064	Ampul Crusher	4600-200-001, Add. 1	7/1/1983
P065	Modification of 30 gallon drum	4600-200-01, Add. 4	8/8/1983
P066	Glove Port & HEPA Filter Cover Fabrication	4600-200-001, Add. 7	8/29/1983
P070	Plutonium Disposal, Work Request	15985, Add. 24	8/19/1983
P074	Loading Radwaste Transporter	15938	3/1/1983
P075	Gloveboxes for HCLA	R-39, Rev. 2	7/17/1972
P076	TRU Waste Drum Disposal Preparation	15672	10/11/1982
P082	Procedure for Plutonium Handling in the HCLA Prior to Obtaining a federal License for Hot Operation of the Separations Plant	B-ACLOP-80-3, Rev. 2	1/16/1980
P085	Glove Box Operating Procedures	B-ACLOP-82A-2, Rev. 1	1/12/1979
P086	Control of Radioactive Material	B-ACLOP-84A-1, Rev. 2	6/2/1980
P087	Various AGNS Analytical Laboratory Procedures	N/A	Various
P088	TRU Drum Repackaging	221-F-55006, Rev. 31	3/18/2010
P089	Absorbing Containerized Liquids	221-F-55012, Rev. 9	3/11/2010

Gilbert, Patsy - LANL

From: Site Documents - DOE
Sent: Thursday, January 19, 2012 10:21 AM
To: 'john.kieling@state.nm.us'
Cc: Stroble, J. R. - DOE; Castaneda, Norma - DOE; Pinzel, Marcus - DOE; Morgan, Thomas - DOE; Mackie, Bill - DOE; Hall, Timothy; Kliphuis, Trais; Holmes, Steve
Subject: Corrected: Review of Savannah River Site Central Characterization Project Waste Stream Profile Form Number SR-AGNS-HOM
Attachments: 12-0409.pdf; Corrected SR-AGNS-HOM WSPF 1.19.12.pdf

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

JAN 2012

Thank you,

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

From: Site Documents - DOE
Sent: Tuesday, January 17, 2012 3:46 PM
To: 'john.kieling@state.nm.us'
Cc: Stroble, J. R. - DOE; Castaneda, Norma - DOE; Pinzel, Marcus - DOE; Morgan, Thomas - DOE; Mackie, Bill - DOE; Hall, Timothy; Kliphuis, Trais; Holmes, Steve
Subject: Review of Savannah River Site Central Characterization Project Waste Stream Profile Form Number SR-AGNS-HOM

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

Thank you,

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

Attachment 2 – CCP Waste Stream Profile Form (Example)

(1) Waste Stream Profile Number: SR-AGNS-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): 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; CCP-AK-SRS-11, Central Characterization Project Acceptable Knowledge Summary Report for Allied-General Nuclear Services Barnwell Nuclear Fuel Plant Transuranic Waste Stored at Savannah River Site Waste Streams: SR-AGNS-HET SR-AGNS-HOM Revision 2 November 1, 2011					
(8) Did your facility generate this waste? YES		NO	X		
(9) If no, provide the name and EPA ID of the original generator: Allied General Nuclear Services (Barnwell Nuclear Fuel Plant) South Carolina EPA ID SCD073706715					
Waste Stream Information					
(10) WIPP ID: SR-AGNS-HOM			(11) Summary Category Group: S3000, Homogeneous Solids		
(12) Waste Matrix Code Group: Solidified Inorganics			(13) Waste Stream Name: Solidified Inorganics from the Barnwell Nuclear Fuel Plant		
(14) Description from the ATWIR: This waste is comprised of aqueous liquids solidified with lime and cement in a 55-gallon drum and aqueous liquid that had been absorbed using Florco-X and then later solidified with cement and water inside a 55-gallon drum.					
(15) Defense TRU Waste: YES	X	NO			
(16) Check One: CH	X	RH			
(17) Number of SWBs - N/A (17a) Number of SLB2 - N/A MK 1-18-12	(18) Number of Drums 16 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, D011 and F005					
(22) Applicable TRUCON Content Numbers: SQ 111/211, SQ 154					
(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-11, Revision 2, November 1, 2011, Figures 1, 2, 3 and 4					
(23B) Facility mission description: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.1					
(23C) Description of operations that generate waste: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.3					
(23D) Waste identification/categorization schemes: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.5					
(23E) Types and quantities of waste generated: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.7					

(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 4.6			
(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-11, Revision 2, November 1, 2011, Section 6.1			
(25B) Waste stream volume and time period of generation: CCP-AK-SRS-11, Revision 2, November 1, 2011, Section 6.2			
(25C) Waste generating process description for each building: CCP-AK-SRS-11, Revision 2, November 1, 2011, 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-11, Revision 2, November 1, 2011, Section 6.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See "Table 2. Waste Stream SR-AGNS-HOM Waste Material Parameter Estimates" in the Summation of Aspects of AK Summary report SR-AGNS-HOM			
(26) Which Defense Activity generated the waste:			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management		Defense nuclear material production
X	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation:			
(27A) Process design documents: See M029 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27B) Standard operating procedures: See M029, P017, P018, P019, P033, P036, P044, P064, P066, P087, P088 and P089 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27C) Safety Analysis Reports: NA			
(27D) Waste packaging logs: See M010 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27E) Test plans/research project reports: See M029 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27F) Site databases: See M033 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27G) Information from site personnel: NA			
(27H) Standard industry documents: NA			
(27I) Previous analytical data: See C081 and M037 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27J) Material safety data sheets: See M039 in Summation of Aspects of AK Summary Report: Waste Stream SR-AGNS-HOM, Source Documents			
(27K) Sampling and analysis data from comparable/surrogate Waste: NA			
(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: 11/10/2011

Reviewed by STR (if necessary): YES [X] N/A [ ] Date: 1/08/2011

Waste Stream Profile Form Certification:

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

Signature of Site Project Manager	Beverly Schrock Printed Name	1/5/12 Date

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

CHARACTERIZATION INFORMATION SUMMARY

WSPF # SR-AGNS-HOM

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream #	SR-AGNS-HOM	Lot #:	1
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Richard Kantrowitz	Date:	12/5/2011

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

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

List of procedures used:

Radiography (RTR/NDE):

CCP-TP-053	Rev. 11	07/20/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 10	03/04/11	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 9	09/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 8	06/30/10	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
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
CCP-TP-053	Rev. 5	11/16/06	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Non Destructive Assay (NDA):

CCP-TP-048	Rev. 11	02/19/08	CCP Mobile IQ3 System Data Reviewing, Validating, and Reporting Procedure
CCP-TP-048	Rev. 10	11/16/06	CCP Mobile IQ3 System 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. 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-002	Rev. 19	12/22/06	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. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-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
CCP-TP-030	Rev. 24	08/20/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/08	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/07	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-001	Rev. 16	10/31/07	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-002	Rev. 20	11/02/07	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-AGNS-HOM Lot # 1

Container ID Number	NDA BDR	NDE BDR	Solids Sampling BDR	Solids Analytical BDRs	Load Management/ Overpack Yes
SR520501	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520502	SRNDA1400	SRSRTR0119	N/A	N/A	
SR520503	SRNDA1492	SRSRTR0153	N/A	N/A	
SR520524	SRNDA1430	SRSRTR0153	N/A	N/A	
SR520530	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520534	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520539	SRLBC0160	SRSRTR0168	N/A	N/A	
SR520548	SRNDA1636	SRSRTR0315	N/A	N/A	
SR520552	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520562	SRNDA1400	SRSRTR0119	SSC11-00002	ALD11020M ALD11020N ALD11020S ALD11020V	
SR520563	SRNDA1464	SRSRTR0194	N/A	N/A	
SR520564	SRNDA1429	SRSRTR0179	N/A	N/A	

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2011
Date

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: SR-AGNS-HOM **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	-1.66	-1.73	0.06	-1.69	10	2.30		
Bromoform	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Carbon Disulfide	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Carbon Tetrachloride	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Chlorobenzene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Chloroform	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1-Dichloroethylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,2-Dichloroethane	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Ethyl benzene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Methylene chloride	Log	0	5	-1.26	-1.33	0.05	-1.29	10	2.30		
m,p-Xylene[d]	No	0	5	0.38	0.36	0.02	0.37	10	N/A		
o-Xylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1,2,2-Tetrachloroethane	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Tetrachloroethylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Toluene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
trans-1,2-Dichloroethylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1,1-Trichloroethane	Log	1	5	-0.51	-1.47	0.54	-1.10	10	2.30		
Trichloroethylene	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
1,1,2-Trichloroethane	Log	0	5	-1.66	-1.73	0.06	-1.69	10	2.30		
Trichlorofluoromethane	Log	0	5	-1.26	-1.33	0.05	-1.29	10	2.30		
Vinyl chloride	Log	0	5	-1.66	-1.73	0.06	-1.69	4	1.39		
Acetone	SQRT	3	5	3.16	2.15	0.81	2.70	100	10.00		
Butanol	Log	5	5	5.63	4.08	1.24	4.93	100	4.61	Yes	(2)
Methanol	No	2	5	8.40	3.59	3.27	5.83	100	N/A		
Methyl ethyl ketone	Log	0	5	1.24	-0.18	0.79	0.37	100	4.61		

CC5005

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: SR-AGNS-HOM **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	Log	0	5	1.24	-0.18	0.79	0.37	10	2.30		
Isobutanol	Log	0	5	1.95	0.52	0.80	1.07	100	4.61		
Pyridine	Log	0	5	1.24	-0.18	0.79	0.37	100	4.61		
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-SOIL 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-SOIL 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 apply.

[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) EPA HWN F003 is not assigned to this waste stream for Butanol because the waste is not liquid and is therefore not ignitable. This is consistent with acceptable knowledge.

CIS006

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2011
Date

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

WSPF #: SR-AGNS-HOM **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		
1,4-Dichlorobenzene [a]	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
2,4-Dinitrophenol	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
2,4-Dinitrotoluene	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
Hexachlorobenzene	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
Hexachloroethane	No	0	5	0.10	0.10	0.00	0.10	2.6	N/A		
2-Methylphenol (cresols)	No	0	5	0.10	0.10	0.00	0.10	2.6	N/A		
3&4 -Methylphenol (cresols)	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
Nitrobenzene	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
Pentachlorophenol	No	0	5	0.10	0.10	0.00	0.10	40	N/A		
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.)

CIS007

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2011
Date

CCP Solids Analysis Metals UCL_{90} Evaluation Form

WSPF #: SR-AGNS-HOM **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	No	2	5	2.70	1.92	0.68	2.38	100	N/A		
Arsenic	SQRT	5	5	4.69	4.03	0.88	4.63	100	10.00		
Barium	No	5	5	150.00	124.00	41.59	152.52	2000	N/A		
Beryllium	No	5	5	2.90	2.46	0.71	2.95	100	N/A		
Cadmium	No	2	5	0.66	0.38	0.24	0.55	20	N/A		
Chromium	No	5	5	75.00	62.40	24.33	79.08	100	N/A		
Lead	Log	5	5	3.18	2.27	0.67	2.73	100	4.61		
Mercury	SQRT	5	5	0.28	0.18	0.08	0.23	4	2.00		
Nickel	No	5	5	25.00	20.00	5.29	23.63	100	N/A		
Selenium	SQRT	0	5	1.52	0.98	0.35	1.23	20	4.47		
Silver	No	0	5	0.18	0.10	0.06	0.14	100	N/A		
Thallium	No	3	5	0.40	0.40	0.00	0.40	100	N/A		
Vanadium	No	5	5	70.00	59.40	18.19	71.87	100	N/A		
Zinc	No	5	5	64.00	47.20	13.50	56.46	100	N/A		

Comments:

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

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

12/5/2011
Date

CI5008

CCP Solid VOCs Summary Data

Waste Stream Number SR-AGNS-HOM 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 12/5/2011

CIS009

CCP Solid SVOCs Summary Data

Waste Stream Number SR-AGNS-HOM Waste Stream Lot Number 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
N-Nitrosodimethylamine	1.70	1	20.00%
bis(2-ethylhexyl)phthalate	0.64	1	20.00%
Ethanol, 2-ethoxy-	2.70	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:

SPM Signature Date 12/5/2011

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: SR-AGNS-HOM 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-AGNS-HOM.

Site Project Manager Signature	Richard Kantrowitz Printed Name	12/5/2011 Date

CIS011

CCP Reconciliation with Data Quality Objectives

WSPF# SR-AGNS-HOM Lot # 1

Sampling Completeness

RTR:

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

NDA

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

HSG

Number of Valid Samples: 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-AGNS-HOM 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-AGNS-HOM 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:
None

Signature of Site Project Manager | Richard Kantrowitz (Printed Name) | 12/5/2011 (Date)

SUMMATION OF ASPECTS OF ACCEPTABLE KNOWLEDGE SUMMARY REPORT: WASTE STREAM SR-AGNS-HOM

Overview

Waste stream SR-AGNS-HOM is contact-handled (CH) transuranic (TRU) solidified inorganics waste generated by the Hot and Cold Laboratory Area (HCLA) at the Barnwell Nuclear Fuel Plant (BNFP) in Barnwell, South Carolina. The BNFP is a commercial facility previously owned by Allied-General Nuclear Services (AGNS). This waste was transferred to the Savannah River Site (SRS) in 1983.

The BNFP was designed and constructed to process spent nuclear fuel from light water-cooled commercial power reactors, but before construction and licensing were completed, President Carter's 1977 executive order banned commercial reactor fuel reprocessing. Hoping the federal government would reverse its decision; the BNFP tested the various parts of the plant and undertook extensive research and development (R&D) work for the Department of Energy (DOE) in order to utilize the plant engineers and laboratory staff. The scope of the DOE contracts involved conducting studies and research concerning the utilization of the BNFP in support of the nonproliferation objectives of the United States, including the investigation and evaluation of proliferation-resistant alternative fuel cycle technologies. The HCLA contained numerous analytical and engineering laboratories built to provide services for various chemical and radionuclide analyses associated with the uranium and plutonium separations processes. Shut-down and partial decontamination and decommissioning (D&D) of the plant was conducted in 1983.

The special nuclear material used at BNFP was supplied by SRS primarily for investigation and evaluation of proliferation-resistant alternative fuel cycle technologies and related safeguards activities. Therefore, the atomic energy defense activity that applies to TRU wastes generated at the BNFP is "defense nuclear materials security and safeguards and security investigations."

This Summation of Aspects of the Acceptable Knowledge (AK) Summary Report includes information to support Waste Stream Profile Form number SR-AGNS-HOM for CH TRU solidified inorganics waste. The primary source of information for this summation is CCP-AK-SRS-11, *Central Characterization Project Acceptable Knowledge Summary Report For Allied-General Nuclear Services Barnwell Nuclear Fuel Plant Transuranic Waste Stored at Savannah River Site, Waste Streams SR-AGNS-HET and SR-AGNS-HOM*, Revision 2, November 1, 2011. CCP-AK-SRS-11 includes information obtained from various sources, including R&D project reports, operating procedures, work requests, waste management and packaging procedures, D&D plans and reports, chemical inventories, waste packaging and shipping forms, previous radiography data, and various correspondence.

Waste Stream Identification Summary

Waste Stream Name:	Solidified Inorganics from the Barnwell Nuclear Fuel Plant
Waste Stream Number:	SR-AGNS-HOM
Dates of Waste Generation:	1982 – 1983
Waste Stream Volume – Current:	16 55-gallon drums
Waste Stream Volume – Projected:	0 55-gallon drums
Summary Category Group	S3000, Homogeneous Solids
Waste Matrix Code Group	Solidified Inorganics

Waste Matrix Code:	S3150, Solidified Homogeneous Solids
TRUPACT-II Content (TRUCON) Codes:	SQ 111, SQ 211, SQ 154
Annual Transuranic Waste Inventory Report Identification Number:	SR-AGNS-HOM

Waste Stream Description and Physical Form

Waste stream SR-AGNS-HOM consists of aqueous liquids (e.g., nitric acid, hydrochloric acid, hydroxylamine nitrate, sodium carbonate) solidified with lime and cement, or aqueous liquids that had been absorbed using Florco-X and then later solidified with cement and water. Florco-X is a fuller's earth absorbent described as hydrous magnesium aluminum silicate.

The waste materials that comprise waste stream SR-AGNS-HOM have common physical form, contain similar hazardous constituents, and were generated from a single process or activity and is therefore a single waste stream. The activity in the HCLA that generated TRU waste was studies and research in support of the nonproliferation objectives of the United States and associated operations (i.e., analytical chemistry, maintenance, and facility cleanup operations).

Point of Generation

Location

Waste stream SR-AGNS-HOM was generated at the BNFP in Barnwell, South Carolina. This waste was transferred to the Savannah River Site (SRS) in 1983.

Area and/or Buildings of Generation

Waste stream SR-AGNS-HOM was generated in the HCLA Building (References D022, D029, D030). Glovebox A in the Alpha Lab handled waste solutions from the Alpha Lab tests. The Second Floor Radiochemistry Lab Number 2 and Plutonium Products Lab were also used on occasion to solidify TRU waste from various HCLA programs (References D002, D019, D024).

Generating Processes

Description of Waste Generating Processes

Aqueous liquid wastes were generated between 1980 and 1982 primarily by R&D activities in the Alpha Lab involving neptunium extraction and the partitioning of plutonium from uranium. The aqueous waste solutions from the Alpha Lab primarily contained nitric acid, nitrous acid, ascorbic acid, hydrazine, and hydroxylamine nitrate. Aqueous wastes, such as those containing fluoride and oxalate, were also generated by the analytical laboratories (References D004, D009, M030, P010, P056, P057 and P059). For the aqueous liquid wastes generated in 1980, sodium hydroxide was added to acidic waste to adjust the solution to pH 5. The neutralized solution was absorbed with Florco-X in 26-liter polyethylene bottles. Two of these 26-liter bottles were then packaged in a 55-gallon drum. The bottles were visually inspected for dryness and packaged in galvanized 55-gallon drums with 90-mil liners (References C074, C081, P009 and P011).

This aqueous waste absorbed on Florco-X absorbent did not conform to the WIPP criteria in the early 1980s, but required a homogeneous solid matrix form for this type of waste (References C049, C051). In 1983, the absorbed liquids were solidified with cement and water inside a 30-gallon drum. First, a steel vane was welded to the inside of the 30-gallon drum, perpendicular to the drum circumference. This vane would facilitate mixing of the contents on a drum roller. Dry Portland cement was added to

the 30-gallon drum and the Florco-X and aqueous liquid mixture (the contents of 2 26-liter bottles) were emptied into the drum. Water and/or additional TRU-contaminated aqueous waste, including decontamination solutions (e.g., nitric acid, hydrochloric acid, sodium carbonate, and water) generated during facility cleanup in 1983, were then added to the drum. The lid was placed on the drum and the contents were mixed on a drum roller. Once the mixture cured, the 30-gallon drum was placed into a 55-gallon drum lined with a rigid polyethylene liner (References C047, C069, D026, D029, D038, M027, M064, P040, P047, P050 and P065).

For the aqueous liquid wastes generated from R&D contract work in 1981 and 1982, the waste was not absorbed on Florco-X but rather was immobilized directly in three 55-gallon drums lined with a rigid polyethylene liner and a polyethylene drum bag. The materials needed consisted of lime (calcium oxide), cement, and liquid. Acidic wastes that were to be solidified were first neutralized with lime or a sodium hydroxide solution. The lime was added to the drum followed by the liquid and the contents were mixed. The cement was then added and mixed until blended. Additional liquid or cement may have been added to achieve the correct consistency. After the mixture was allowed to cure, it was inspected for free liquid. If liquid was observed, additional cement was added to solidify the liquid (References C074, P012 and P053). Plastic bags used for contamination control were also placed on top of the cemented waste. The three drums are approximately two-thirds filled with a solid yellowish concrete (Reference C050).

Waste Stream Material and Chemical Inputs

Table 1 identifies the toxicity characteristic and F-listed constituents in waste stream SR-AGNS-HOM.

Table 1 – Toxicity Characteristic and F-Listed Constituents Waste Stream SR-AGNS-HOM

Constituent	CAS #	EPA HWNs
Arsenic	7440-38-2	D004
Barium	7440-39-3	D005
Cadmium	7440-43-9	D006
Chromium	7440-47-3	D007
Lead	7439-92-1	D008
Mercury	7439-97-6	D009
Silver	7440-22-4	D011
Pyridine	110-86-1	F005

RCRA Determinations

Historical Waste Management

Waste stream SR-AGNS-HOM was not characterized and managed in accordance with RCRA or the South Carolina Hazardous Waste Management Regulations (SCHWMR). TRU waste generated in the early-1980s was not subject to RCRA-hazardous waste regulations, and there was no requirement in BNFP procedures from 1982 and 1983 to assign EPA hazardous waste numbers. SRS has managed containers in this waste stream as nonhazardous waste; however, as described below, there is evidence that the waste contains RCRA-hazardous constituents (References P006, P007, P045, P050, P053 and P076).

Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

The waste material in this waste stream does not exhibit the characteristic of ignitability as defined in 40 CFR 261.21. The waste is not a liquid, an ignitable compressed gas, or an oxidizer, and it is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. TRU waste generated in the early-1980s was packaged according to plans and procedures to meet SRS waste acceptance criteria. Materials prohibited by procedure from TRU waste included pyrophorics, flammables, compressed gases, and free flowing liquid (References C007, C072, P024, P045, P053). This waste is not an oxidizer because oxidizing compounds such as nitric acid and hydroxylamine nitrate were solidified. Waste stream SR-AGNS-HOM is therefore not ignitable (D001).

The waste material in this waste stream does not exhibit the characteristic of corrosivity as defined in 40 CFR 261.22. TRU waste generated in the early-1980s was packaged according to plans and procedures to meet SRS waste acceptance criteria. Materials prohibited by procedure from TRU waste included corrosives and free flowing liquid (References C007, C066, C067, C072, P024, P045, and P053). Acidic liquids (e.g., nitric acid, nitrous acid, hydrochloric acid) were neutralized with lime or a sodium hydroxide solution prior to being solidified (References P009, P012). Waste stream SR-AGNS-HOM is therefore not corrosive (D002).

The waste material in this waste stream does not exhibit the characteristic of reactivity as defined in 40 CFR 261.23. The waste is stable and will not undergo violent chemical change. The waste 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 reactive cyanide or sulfide compounds. There is no indication that the waste contains explosive materials, and it is not capable of detonation or explosive reaction.

TRU waste generated in the early-1980s was packaged according to plans and procedures to meet SRS waste acceptance criteria. Explosives were expressly prohibited from TRU waste (References C007, C072, P024 and P053). Anhydrous hydrazine is explosive in contact with air; however, the BNFP used hydrazine hydrate (33 – 37 weight percent hydrazine) which is not reactive (Reference P087). Reactive metals and reactive cyanide compounds were not identified in the AK documentation reviewed. Sodium sulfide solutions were made up for use in a procedure for spectrophotometric determination of sulfide in water (Reference P087). The solidified aqueous wastes are potentially contaminated with very trace quantities sodium sulfide from this procedure but this will not cause this waste stream to be reactive. Waste stream SR-AGNS-HOM is therefore not reactive (D003).

The containers in the waste stream will be evaluated in accordance with the WIPP-WAP using Real-Time Radiography (RTR) and/or Visual Examination (VE) prior to shipment to ensure the waste is not ignitable, corrosive, or reactive.

Toxicity Characteristic

Waste stream SR-AGNS-HOM meets the definition of toxicity for metal compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24). The solidified wastes were derived from the treatment of aqueous liquids that may contain toxicity characteristic metals based on the following identified uses/sources:

- Arsenic is a component of Arsenazo I and Arsenazo III which were used in a lab procedure for the titrimetric determination of metals in an aqueous sample. Sodium arsenite was used in a lab procedure for the spectrophotometric determination of phenolic compounds in water (References P046, P087).

- Barium carbonate was used to prepare analytical standards (References C064). Barium chloride was used in a lab procedure for nitric acid specification analysis (References P046, P087).
- Cadmium carbonate and cadmium nitrate were listed on a 1983 HCLA chemical inventory (Reference P046).
- Potassium dichromate was used for titration in the Davies-Gray method for uranium determination, and in a lab procedure for the determination of plutonium by amperometric titration with iron (References D014, P087). Chromium is also a corrosion product of stainless steel (Reference C026). The chromium compounds chromic nitrate, chromium trioxide, and sodium chromate were listed on a 1983 HCLA chemical inventory (Reference P046).
- Lead nitrate and lead oxide were listed on a 1983 HCLA chemical inventory (Reference P046).
- Mercury was used in lab procedures for the determination of mercury by atomic absorption and for titrimetric determination of metals by sodium-cerium EDTA replacement EDTA titrimetry. Mercuric thiocyanate was used in a lab procedure for the spectrophotometric determination of chloride ion in water. A mercurous sulfate reference electrode was used in a lab procedure for the determination of plutonium by amperometric titration with iron (Reference P087). Mercuric chloride, mercuric iodide, and mercuric oxide were listed on a 1983 HCLA chemical inventory (Reference P046).
- Silver nitrate was used in a lab procedure for spectrographic determination of impurities in plutonium (References P046, P087).

The disposition of the aqueous liquid wastes from these laboratory analyses was not specified, but they would likely have been solidified as aqueous waste. Since data are not available that demonstrate the concentration of these metal constituents is less than the toxicity characteristic regulatory level, EPA hazardous waste numbers D004, D005, D006, D007, D008, D009, and D011 are assigned to this waste stream consistent with RCRA.

Waste stream SR-AGNS-HOM does not exhibit the characteristic of toxicity for organic compounds as defined in 40 CFR Part 261, Subpart C (40 CFR 261.24). Carbon tetrachloride was used as an extractant in the spectrophotometric determination of phenolic compounds in water. Chloroform was used in lab procedures for the spectrographic determination of refractory elements in uranyl nitrate and volumetric determination of fluorine in fluorinator exit gas. 1,1-Dichloroethylene was used in a lab procedure for the determination of Iodine-129 (Reference P087). These organics compounds are insoluble or only slightly soluble in water and will not be present in solidified aqueous waste. Therefore, EPA hazardous waste numbers D019, D022, or D029 are not assigned to this waste stream. Pyridine was identified in the waste (see below); however, EPA hazardous waste number D038 is not assigned to the waste stream because the more specific F005 EPA hazardous waste number is assigned for this compound.

Listed Waste

F-Listed Waste

Waste stream SR-AGNS-HOM is an F-listed hazardous waste because the solidified wastes were derived from the treatment of aqueous liquids that were mixed with hazardous wastes from non-specific sources as listed in 40 CFR Part 261, Subpart D (40 CFR 261.31).

- Pyridine was used as a solvent in a lab procedure for the titrimetric determination of metals in an aqueous sample. About 3 ml of pyridine (which is miscible in water) was added to an aqueous sample that was diluted in 125 ml of water. The disposition of the spent liquid was not specified but likely would have been collected and solidified as aqueous waste (Reference P087).

Therefore, waste stream SR-AGNS-HOM is assigned EPA hazardous waste number F005 consistent with RCRA.

The F002-listed solvent 1,1,2-trichloro-1,2,2-trifluoroethane was used to wash metallic samples to remove any carbon containing oils or greases (Reference P087). The method used to wash the samples is not specified, but because they were analyzing small metal samples, it is assumed that wipes and small amounts of the solvent were brought into the glovebox for this purpose, and no documentation has been identified indicating any solvent spills (Reference P087). Scouring pads and commercially available cleaners (e.g., Aero-Brite) and wipes were used for subsequent decontamination of glovebox interiors. The scouring pads and wipes would have been included in the debris waste stream. Therefore, 1,1,2-trichloro-1,2,2-trifluoroethane would not be present in this waste stream. Raycohesive B-84, which was an adhesive used for sealing the drum liner lid, contains the F002-listed solvents methylene chloride and 1,1,1-trichloroethane (References M039, P006, P076). According to the WIPP-WAP, solvents associated with waste packaging do not meet the definition of an F-listed waste. Therefore, waste stream SR-AGNS-HOM is not an F002-listed hazardous waste.

The F001-listed solvents carbon tetrachloride and 1,1,2-trichloro-1,2,2-trifluoroethane were used as solvents in the HCLA analytical laboratories (Reference P087). However, 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. This waste was not generated from large-scale degreasing operations, and therefore, waste stream SR-AGNS-HET is not an F001- listed hazardous waste.

Several of the F003-listed solvents are miscible or moderately soluble in water. In a lab procedure for the titrimetric determination of metals in an aqueous sample, the sample was diluted with acetone. A nitric acid-methanol eluting solution was used in an anion exchange separation lab procedure (Reference P087). The disposition of the spent liquid was not specified but likely would have been collected and solidified as aqueous waste. However, F003-listed solvents are listed solely for ignitability, and this waste stream does not exhibit the characteristic of ignitability because the solvents are not in liquid form. Therefore, waste stream SR-AGNS-HOM is not an F003-listed hazardous waste.

Toluene was used as a solvent in lab procedures for liquid scintillation counting. The scintillation cocktail containing toluene is organic and would not be present in solidified aqueous waste. However, toluene along with several other chemicals was also added to an aqueous sample in a separatory funnel. The contents were shaken to allow separation of the aqueous and organic phases, and the aqueous phase was discarded (Reference P087). The organic phase would not be present in solidified aqueous waste. The disposition of the aqueous liquid was not specified, but would likely have been collected and solidified as aqueous waste. According to EPA, the aqueous phase from organic liquid-liquid extraction that contains small amounts of organic solvent (toluene in this case) is not regulated as an F-listed spent solvent.

K-Listed Wastes

Waste stream SR-AGNS-HOM does not include any of the manufacturing process wastes from the specific industries or sources listed in 40 CFR 261.32. Therefore, waste stream SR-AGNS-HOM is not a K-listed hazardous waste.

P and U-Listed Wastes

Waste stream SR-AGNS-HOM does not contain a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33). Numerous U- and P-listed chemicals were used in the HCLA; however, according to

procedure, laboratory chemicals were packaged separately from other waste and shipped off-site for disposal (Reference P046). None of the other AK documentation reviewed indicates that pure product or unused chemicals were solidified (Reference M015).

One of the U-listed chemicals used in the HCLA was hydrofluoric acid. Small quantities of hydrofluoric acid (typically in combination with other acids such as hydrochloric acid) was used for dissolving plutonium oxide, complexing plutonium in solution, eluting plutonium from an ion-exchange column, and polymerization of plutonium ions (References D047, D051, D080, P087). Spent hydrofluoric acid or acid mixtures containing hydrofluoric acid may have been solidified. According to procedure, acids were neutralized before being solidified (References P009, P012). Based on the AK documentation reviewed, the hydrofluoric acid does not meet the definition of a U-listed waste, and therefore, EPA hazardous waste number U134 is not assigned to this waste stream.

A small amount of beryllium oxide was identified in the emission spectroscopy lab, but there is no evidence of unused beryllium powder in this waste stream (References D001, M054, P005, P020, P046). Therefore, EPA hazardous waste number P015 is not assigned to this waste stream.

Polychlorinated Biphenyls (PCBs)

This waste stream does not contain PCBs greater than 50 ppm, and therefore, is not regulated as a TSCA waste under 40 CFR 761. This waste stream consists of solidified aqueous liquids which is not a source of PCBs.

Prohibited Items

Un-containerized liquids are relatively common in a solidified liquid waste; however, limited RTR has been conducted by SRS on this waste stream and observable liquids were not identified (Reference M009).

Based on limited RTR conducted by SRS on this waste stream, a hole was identified in the lid of one inner 30-gallon drum, but a hole could not be seen in another 30-gallon drum (Reference M009). The AGNS procedure for this waste did not indicate that a hole was in the 30-gallon drum lid (Reference P047). Any 30-gallon drum that RTR and/or VE identify with no hole in the lid is considered a sealed container greater than four liters and will be vented.

Certified RTR and/or VE are performed by CCP to ensure liquids do not exceed the amount allowed by the WIPP-WAP, the absence of ignitable compressed gases and explosives, and other prohibited items are not shipped to WIPP. Any container identified with liquids in excess of the amount allowed by the WIPP-WAP, unpunctured aerosol cans, compressed gas cylinders, or explosives will be segregated from the waste stream and will not be eligible for disposal at WIPP until the prohibited materials are removed (References M009, P022).

Method for Determining Waste Material Parameter Weights per Unit of Waste

For waste stream SR-AGNS-HOM, only the weight of organic material was estimated by the generator and documented on the TRU Waste Data Package/Certification form. For each of the drums in this waste stream, the weight of organic material was reported as 5 kilograms (kg) which is the weight of the 55-gallon polyethylene drum liner (Reference M027). The drum liner is plastic packaging and is not included in plastic (waste materials). The calculated weight percent of iron-based metal is based on the weight of the 30-gallon steel inner drum. For the direct-load 55-gallon drums, 0.5 kg of plastic (waste materials) is assigned to account for the polyethylene liner bag that is in contact with the waste. The remaining weight is assigned to inorganic matrix because the waste is

absorbed/cemented aqueous liquids. The results of the waste material parameter analysis are presented in Table 2. This evaluation is documented in a memorandum as required by CCP-TP-005.

Table 2 – Waste Stream SR-AGNS-HOM Waste Material Parameter Estimates

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	7.0%	0% – 10.8%
Aluminum-based Metals/Alloys	0.0%	0% – 0.0%
Other Metals	0.0%	0% – 0.0%
Other Inorganic Materials	0.0%	0% – 0.0%
Cellulosics	0.0%	0% – 0.0%
Plastics (waste materials)	0.1%	0% – 0.2%
Rubber	0.0%	0% – 0.0%
Organic Matrix	0.0%	0% – 0.0%
Inorganic Matrix	92.9%	89.2% – 99.8%
Soils/Gravel	0.0%	0% – 0.0%

List of Any AK Sufficiency Determinations Requested for the Waste Stream

No AK Sufficiency Determinations were requested for this waste stream.

Transportation

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

Beryllium

A review of available AK source documentation identified a small amount of beryllium oxide in the emission spectroscopy lab, but there is no evidence of beryllium in the TRU waste (References D001, M054, P005, P020 and P046). Therefore, beryllium will not be present in amounts greater than one percent by weight of the waste in each drum.

Radionuclide Information

The two most prevalent radionuclides, by mass, in this waste stream are U-238 and Pu-239. The isotopes expected to be present in this waste stream are listed in Table 3.

Table 3 – Waste Stream SR-AGNS-HOM Radiological Characterization

Isotope	Total Radionuclide Wt%[1]	Radionuclide Wt% Range for Individual Containers[2]	Total Radionuclide Ci%[3]	Radionuclide Ci% Range for Individual Containers[4]	Suspected Present (Yes/No)
WIPP Required Radionuclides					
Am-241	Not reported	Not reported	Not reported	Not reported	Yes [7]
Pu-238	0.03%	Trace - 0.46% [6]	2.00%	1.06% - 2.10%	Yes

Isotope	Total Radionuclide Wt%[1]	Radionuclide Wt% Range for Individual Containers[2]	Total Radionuclide Ci%[3]	Radionuclide Ci% Range for Individual Containers[4]	Suspected Present (Yes/No)
Pu-239	**7.13%**	0.67% - 89.70% [6]	1.81%	0.46% - 1.65%	Yes
Pu-240	1.62%	0.17% - 21.62% [6]	1.51%	0.38% - 1.53%	Yes
Pu-242	0.10%	0.01% - 2.46% [6]	Trace	Trace	Yes
U-233	0.06%	0.00% - 6.51%	Trace	0.00% - 0.03%	Yes
U-234	Trace [5]	0.00% - Trace	Trace	0.00% - Trace	Yes
U-238	**89.87%**	0.00% - 98.41%	Trace	0.00% - Trace	Yes
Cs-137	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [8]
Sr-90	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [8]
Additional Radionuclides					
Ce-144	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [9]
Nd-144	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [9]
Np-237	0.31%	0.00% - 26.04%	Trace	0.00% - Trace	Yes
Pu-241	0.23%	0.02% - 2.73%	94.67%	83.37% - 95.56%	Yes
Pu-244	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [10]
Th-228	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [11]
Th-230	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [11]
Th-232	Trace	0.00% - Trace	Trace	0.00% - Trace	Yes [11]
U-235	0.64%	0.00% - 0.71%	Trace	0.00% - Trace	Yes

1. This listing indicates the total weight percent of each radionuclide over the entire Waste Stream.
2. This listing is the weight percent 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.
3. This listing indicates the total activity (curie) percent of each radionuclide over the entire Waste Stream.
4. This listing is the curie percent range of each radionuclide on a container-by-container basis.
5. "Trace" indicates <0.01weight percent for that radionuclide.
6. These plutonium ranges were expanded to include BGR data (Reference M052) and information from other AK source documents.
7. Am-241 was not reported in assay data, but because every drum in this waste stream contains LWR plutonium, the waste will also contain Am-241 from Pu-241 decay.
8. Sr-90 cannot be quantified by gamma spectroscopy. Its value is calculated based on measured Cs-137 values. A Sr-90/Cs-137 scaling factor of 1.0 is used to calculate Sr-90.
9. Ce-144 and Nd-144 were not reported in waste assay data. A total of 30 micro-curies of Ce-144 was reported in source documentation (Reference M030). The Ce-144 has now decayed almost completely to Nd-144.
10. Pu-244 was not reported in waste assay data, but is assumed to be present in trace quantities based on source documentation (References D014, D049, D080).
11. Th-228, Th-230, and Th-232 were not reported in waste assay data, but are assumed to be present in trace quantities based on sample analysis in the engineering lab (Reference D081).

Payload management will not be implemented for this waste stream.

Attachment 1 - AK SOURCE DOCUMENTS

Source Document Number	Title	Document Number	Date
C006	Memo to J. B. Maier re: Instruments Used for the Assay of TRU Contaminated Job Control Waste	AS/82/252	11/29/1982
C007	Letter to Steve Tom re: AGNS/SRP TRU Waste Certification Meeting on October 7, 1982	N/A	1/6/1983
C008	Memo to B. D. Helton re: Inspection of AGNS TRU Waste Drums	830000196	5/17/1983
C009	Memo to G. A. Huff re: Decontamination of Pu Product Lab Gloveboxes	N/A	8/12/1983
C010	Letter to C. G. Halsted re: AGNS Transuranic Material Shipment to SRP	XHK-D2A-13	9/6/1983
C011	Memo to C. Joseph re: Special Nuclear Material -- HCLA	AS/83/153	10/18/1983
C012	Memo to G. A. Huff re: Plutonium Contaminated Areas in the Upper HCLA	AS/83/155	10/25/1983
C013	Memo to J. H. Ellis re: Decontamination and Salvage of the Nuclear Technology Laboratories	ODM/83/64	12/8/1983
C014	Memo to Jack Doody re: Gloveboxes	N/A	9/4/1984
C015	Memo to Forrow, Fritsch, & Smith re: Residual Plutonium at the Barnwell Nuclear Fuels Plant	Draft	2/8/1985
C016	Memo to Forrow, Fritsch, & Smith re: Residual Plutonium at the Barnwell Nuclear Fuel Plant	N/A	3/1/1985
C017	Letter to M. G. O'Rear re: DOE-HQ Request for Information on Greater-Than-Class-C (GTCC) > Class C Waste Stored/Disposed at Savannah River from Commercially Licensed Facilities	N/A	7/18/1988
C018	Memo to Mario Fiori and Greg Rudy re: Allied General Nuclear Services -- Barnwell Reprocessing Facility	N/A	~1995 - 1996
C019	Memo to Gregory Rudy re: Decontamination efforts at the Allied General Nuclear Services' Barnwell Nuclear Fuels Plant	N/A	6/23/1998
C021	Memo to Jim McNeil re: New Waste Estimates	AGNS-WMC-0	8/17/1999
C026	Notes from Weekly Telephone Conference Call Between AGNS and SRS	N/A	7/98
C029	Notes from a Telephone Conversation Between AGNS and SRS	N/A	5/19/1999
C030	Notes from a Telephone Conversation Between AGNS and SRS	N/A	7/21/1999
C031	Notes from a Telephone Conversation Between AGNS and SRS	N/A	8/18/1999

Source Document Number	Title	Document Number	Date
C032	Notes from a Telephone Conversation Between AGNS and SRS	N/A	10/13/1999
C034	Letter to Stan Massingill re: Comments on Waste Characterization and Certification Plan	N/A	7/1/1998
C035	Notes from a Telephone Conversation Between AGNS and SRS	N/A	9/1/1999
C036	Notes from a Telephone Conversation Between AGNS and SRS	N/A	11/10/1999
C037	Notes from a Telephone Conversation Between AGNS and SRS	N/A	11/24/1999
C038	Notes from a Telephone Conversation Between AGNS and SRS	N/A	12/8/1999
C039	Notes from a Telephone Conversation Between AGNS and SRS	N/A	1/5/2000
C040	Notes from a Telephone Conversation Between AGNS and SRS	N/A	2/2/2000
C041	Notes from a Telephone Conversation Between AGNS and SRS	N/A	2/16/2000
C042	Notes from a Telephone Conversation Between AGNS and SRS	N/A	3/1/2000
C043	Notes from a Telephone Conversation Between AGNS and SRS	N/A	3/29/2000
C047	Handwritten memo from G. M. Traverso to B. D. Helton re: AGNS Aqueous Waste	N/A	8/3/1983
C049	Memo from S. M. Tom to R. A. Scaggs re: AGNS Transuranic Waste Disposal Status at SRP	N/A	8/15/1983
C050	Memo from S. M. Tom to J. H. Hershey re: AGNS Solidified Waste Inspection Visit	N/A	11/19/1982
C051	Memo from S. M. Tom to O. M. Morris re: AGNS TRU Waste Certification Meeting	N/A	10/26/1982
C052	Memo from M. J. Sires to J. L. Womack re: Shipment of 20 grams of Np-237 as oxide to AGNS from SRS	N/A	Unknown
C054	Letter from James Maier to Steven Tom re: AGNS/SRP Waste Certification Information	N/A	7/20/1983
C055	Letter from William Knox to J. W. Geiger re: Letter, O.M. Morris to T. B. Hindman, September 30, 1981 Requesting Additional Information about the TRU Waste at AGNS	N/A	11/4/1981

Source Document Number	Title	Document Number	Date
C063	Memo from R. L. Morgan to James A. Buckham re: Survey Report No. 172 of Government-owned Accountable Materials at Allied General Nuclear Services	N/A	2/11/1982
C064	Memo from J. J. Jernigan to Ronald D. Simpson re: AGNS Shipment to SRS of Lab Standards and Special Nuclear Materials. Supporting memos are included	ACC/83/195; AGDE/83/141	8/29/1983
C066	Collection of Memos re: Disposal of Allied-General Nuclear (AGNS) TRU Waste	N/A	3/2/1982
C067	Memo from J. K. Epting to G. L. Albert re: Revisions to DPSON 241-FH-40, Packing TRU Waste and Sealing in 55-Gallon Drums	N/A	9/18/1980
C068	Memo from L. G. Jordan from J. B. Maier re: TRU Waste Drums and Isotopic Distributions of Drums	N/A	8/23/1983
C069	Memo from Monte Hawkins to W. F. Lawless re: Aqueous TRU Waste with attached handwritten notes and photo	SEC/83/141	8/16/1983
C072	Memo from Tom to Helton re: AGNS TRU Waste Certification Meeting on October 8, 1982	N/A	10/8/1982
C074	Letter from Maier to Tom re: AGNS/SRP Waste Certification Information re: TRU Waste Packaging	N/A	5/13/1983
C077	Memo from R. K. Sloan to File re: Consumption of DOE-Owned Plutonium and Neptunium	ACC/83/076	3/24/1983
C078	Memo from C. Joseph to L. L. Thomas re: Nuclear Materials Balance Summary	NMC/83/84	5/3/1983
C081	Letter to Steven Tom, SRP Waste technology, RE: AGNS/SRP Waste Certification Information	ADM W.2.a SEC/83/96	5/13/1983
C091	Memo to G.A. Huff, re: Plutonium Contaminated Areas in the Upper HCLA	AS/83/155	10/25/1983
C095	Memo re: Monthly Reports	N/A	1974 - 1983
D001	Waste Characterization and Certification Plan for the Decommissioning of the Barnwell Nuclear Fuel Plant	N/A	6/30/1998
D002	BNFP Decommissioning Plan - HCLA	N/A	1/19/1999
D004	Technical Progress Report for January 1979 - March 1979	AGNS-5900-TPR-1	4/25/1979
D009	Neptunium Recovery Laboratory Studies	AGNS-35900-3.3-33	10/1979
D012	Evaluation of an On-Line Alpha Monitor for Plutonium in a Uranium Product Organic Stream	AGNS-35900-2.4-83	7/1980

Source Document Number	Title	Document Number	Date
D014	Analytical Chemistry Methods Development and Quality Control Program	AGNS-35900-2.4-150	11/1981
D018	Nuclear Materials Control and Accountability	Survey No. 182	2/3/1984
D019	Hot and Cold Laboratory Area Facility Characterization Plan	N/A	~1999
D022	Waste Management Plan for the Decommissioning of the Barnwell Nuclear Fuel Plant	N/A	5/1998
D024	Historical Site Assessment of the Hot and Cold Laboratory Area at the Barnwell Nuclear Fuel Plant	N/A	1/1998
D026	Final Radiological Status Survey Report for the Barnwell Nuclear Fuel Plant, HCLA	Books 1, 2, & 3	5/2000
D029	1981 Decommissioning Study Supporting Documentation	N/A	6/1981
D030	Allied-General Nuclear Services Barnwell Nuclear Fuel Plant Decommissioning Plan	N/A	10/14/1983
D038	Final Report - Decommissioning of Lab Areas, transmitted by memo from G. A. Huff to J. H. Ellis on 12/15/1983	N/A	12/15/1983
D044	Electrolytic Studies Pertaining to the 1B Electropulse Column	AGNS-35900-3.3-30	9/1979
D045	Status of Analytical Measurement Technology Development at the BNFP	AGNS-35900-2.4-175	8/1982
D046	An Integrated Near Real-Time Plutonium Inventory System for LWR Reprocessing Solutions	AGNS-35900-CONF-137	7/1981
D047	The Determination of Free Acid in Plutonium (IV) Solutions	AGNS-35900-2.4-136	7/1981
D049	Plutonium Measurement Improvements by the Mass Spectrometric Technique	AGNS-35900-2.4-98	11/1980
D051	The Determination of Free Acid in Plutonium Solutions by Thermometric Titration	AGNS-35900-2.4-82	7/1980
D055	Determination of Free Acid in Plutonium (IV) Solutions - Thermometrically, Potentiometrically	AGNS-35900-CONF-146	9/1981
D076	FY-1983 BNFP Operational Test Program; Program Description and Evaluation	AGNS-11033-1.4-10	7/1983
D078	Technical Progress Report; April 1979 - June 1979	AGNS-35900-TPR-8	6/1979
D080	The Development and Modification of Analytical Chemistry Methods Required in the Separation of Nuclear Fuels	AGNS-35900-2.4-46	11/1979
D081	Site Characterization Report for the Hot and Cold Laboratories Area at the Barnwell Nuclear Fuel Plant	N/A	2/1998

Source Document Number	Title	Document Number	Date
	Disposition Schedule		
M037	Transuranic Waste Container Characterization Data	N/A	Various
M038	Handwritten Dispositions of Radioactive Materials - both Receipts and Transfers	N/A	~1983
M039	MSDS Data Sheets	c5786	11/28/2005
M041	Nuclear Material Transaction Reports	N/A	1983 - 1984
M042	AGNS Work Request - HCLA Decontamination & Salvage Plan	AWR 15985	12/28/1983
M044	Meeting Minutes from Meeting between AGNS and SRS re: Waste from Barnwell Nuclear Fuel Plant Decommissioning W/ Power Point Presentation	N/A	6/10/1998
M046	AGNS/DOE Prime Contract Modifications	ET-78-C-09-1040	12/14/1977
M047	Power Point Presentation - BNFP Decommissioning Project Update	N/A	10/1999
M050	Abstract or Waste Management in the BNFP Decommissioning	N/A	4/25/2000
M052	Burial Ground Records	N/A	Various
M054	Shipment Checklist for AGNS Shipment NUMBER AGNS-060	N/A	3/15/2000
M055	Radioactive Waste Transfer Records	N/A	1980 - 1983
M057	Receiving of TRU Waste from Allied-General Nuclear Services - 3 revisions are attached	2-1017; 2-1017A; 2-1017B	1982 - 1983
M061	Status of Contract Closeout Activities Relating to Allied-General Nuclear Services (AGNS)	N/A	10/24/1983
M064	PowerPoint Presentation with handwritten notes: Solidification of AGNS Aqueous TRU Waste	N/A	~1983
M067	BNFP Building Floor Plans	N/A	~1983
M068	Specifications for Polyethylene Drum Liners and Galvanized Drums	N/A	~1983
M070	Purchase Requisition for 51 grams of Plutonium	0-2101	12/9/1980
M075	Pu Waste Drums	N/A	Unknown
P002	Process Solvent Shipment	45001, AWR NO.00001	10/5/1983
P004	Hazardous Waste and Mixed Waste Management	TR-101, Rev. 1	10/7/1999
P005	Transuranic Waste Management	TR-104, Rev. 3	6/22/1999
P006	TRU Waste Drum Disposal Preparation	N/A	10/29/1982
P007	Spec. Marking/TRU Radwaste Drums	N/A	9/10/1982

Source Document Number	Title	Document Number	Date
P009	AGNS Work Request for Liquid Pu Waste for HCLA, and Alpha Lab	WI-0, AWR: 14807	10/17/1980
P010	AGNS Work Request for Co-processing Purification Cycle Studies (Sub-Task 2.5.1.2 of FY 1981 Program Plan) for Alpha Lab	WI-1, AWR 14902	12/12/1980
P011	Repackaging Pu Contaminated Waste for HCLA and Alpha Lab	WI-1, AWR 15035	3/30/1981
P012	Solidification of Liquid Radwaste Generated in BNFP Laboratories	B-ACLOP-82A-5, Rev. 0	12/6/1979
P017	Decontamination of Transuranic Contaminated Surfaces	TR-300, Rev. 0	7/1/1998
P018	Decontamination of Transuranic Contaminated Equipment	TR-301, Rev. 0	7/10/1998
P019	Removal of Transuranic Contaminated Equipment and Material	TR-302, Rev. 0	7/13/1998
P020	BNFP Hazardous Materials Shipping Procedure	TR-105, Rev. 1	1/25/1999
P022	MRS Operations	SW15.3-SOP-MRSOPS-01	11/8/2006
P023	Memo from J. A. Schlesser to TRU Waste Coordinators transmitting procedure: Packing and Sealing TRU Waste in 55-Gallon Drums	DPSOL 241-FH-40, Rev. 4	12/1980
P024	Savannah River Plant Radiation and Contamination Control/Management of Solid Radioactive Waste	DPSPO 40	Various
P025	E-Area TRU Pads Transuranic Waste Acceptance Criteria	WAC 3.06, Rev. 6	2/12/1999
P028	Decon & Salvage Emission Spec, Room 46, Work Request	15985, Add 3	7/15/1983
P029	Decon & Salvage Spec. Prep. Lab, Room 49, Work Request	15985, Add. 4	7/15/1983
P033	Decon & Salvage Standards Lab, Work Request	15985, Add. 8	7/15/1983
P036	Decon & Salvage Radio Chem - NT, Work Request	15985, Add. 11	7/15/1983
P040	Decon & Salvage Alpha Laboratory, Work Request	15985, Add. 16	7/15/1983
P041	Decon & Salvage Pu Product Lab, Room 34, Work Request	15985, Add. 17	12/28/1983
P044	Decon & Salvage Counting Room, Work Request	15985, Add. 20	7/15/1983
P045	TRU Inventory Control & Waste Handling, Work Request	15985, Add. 21	7/15/1983
P046	Packaging of Non-Rad Chemicals, Work Request	15985, Add. 22	8/10/1983
P047	Solidification of TRU Waste as Concrete, Work Request	15985, Add. 25	8/17/1983
P049	Decontamination of Engineering Laboratory, Work Request	15985, Add. 29	10/26/1983

Source Document Number	Title	Document Number	Date
P050	HCLA Decontamination & Salvage Plan, Work Request	15985	6/15/1983
P053	Handling and Shipping of Low-Level Radioactive Wastes	A-ODAP-32, Rev. 5	6/30/1982
P054	Repacking of Solid TRU Waste into galvanized drums	14993	2/27/1981
P056	FY81 Program Plan	14959	1/23/1981
P057	FY81 Program Plan	14902	12/12/1980
P059	FY81 Program Plan, Ref NT-POP-501-10, NT-POP-501-11	15111	6/15/1981
P061	Work-Site Ventilation & Vacuum Cleaner HEPA Filter Change-out	TR-510, Rev. 4	6/22/1999
P064	Ampul Crusher	4600-200-001, Add. 1	7/1/1983
P065	Modification of 30 gallon drum	4600-200-01, Add. 4	8/8/1983
P066	Glove Port & HEPA Filter Cover Fabrication	4600-200-001, Add. 7	8/29/1983
P070	Plutonium Disposal, Work Request	15985, Add. 24	8/19/1983
P074	Loading Radwaste Transporter	15938	3/1/1983
P075	Gloveboxes for HCLA	R-39, Rev. 2	7/17/1972
P076	TRU Waste Drum Disposal Preparation	15672	10/11/1982
P082	Procedure for Plutonium Handling in the HCLA Prior to Obtaining a federal License for Hot Operation of the Separations Plant	B-ACLOP-80-3, Rev. 2	1/16/1980
P085	Glove Box Operating Procedures	B-ACLOP-82A-2, Rev. 1	1/12/1979
P086	Control of Radioactive Material	B-ACLOP-84A-1, Rev. 2	6/2/1980
P087	Various AGNS Analytical Laboratory Procedures	N/A	Various
P088	TRU Drum Repackaging	221-F-55006, Rev. 31	3/18/2010
P089	Absorbing Containerized Liquids	221-F-55012, Rev. 9	3/11/2010