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

AUG 26 2011

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 Idaho National Laboratory - Central Characterization Project Waste Stream Profile Form Number ID-SA-T001

Dear Mr. Kieling:

The Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number ID-SA-T001, *Contact-Handled Heterogeneous Debris Waste from the Lovelace Respiratory Research Institute stored at the Idaho National Laboratory (INL)*, for the Central Characterization Project at Idaho National Laboratory.

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.

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

cc: w/enclosure
T. Hall, NMED *ED
J. Davis, NMED ED
S. Holmes, NMED ED

cc: w/o enclosure
J. R. Stroble, CBFO ED
N. Castaneda, CBFO ED
B. Mackie, CBFO ED
T. Morgan, CBFO ED
CBFO M&RC
*ED denotes electronic distribution

110837

CBFO:NTP:JRS:GS:1-1731:UFC 5900.00

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: ID-SA-T001						
(2) Generator site name: Idaho National Laboratory				(4)Technical contact: Jim Vernon		
(3) Generator site EPA ID: ID4890008952				(6) Technical contact phone number: (575) 234-7141		
(5) Date of audit report approval by New Mexico Environment Department (NMED): September 19, 2005; June 29, 2006; August 6, 2007; September 22, 2008; September 11, 2009; October 20, 2010						
(7) Title, version number, and date of documents used for 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-024, CCP/INL Interface Document, Revision 11 July 18, 2011; CCP-AK-INL-020, Central Characterization Project Acceptable Knowledge Summary Report for Lovelace Respiratory Research Institute Contact-Handled Transuranic Waste Stored at Sandia National Laboratories/New Mexico Shipped to Advanced Mixed Waste Treatment Project Waste Stream: ID-SA-T001: Revision 2, May 16, 2011						
(8) Did your facility generate this waste? YES			NO	X		
(9) If no, provide the name and EPA ID of the original generator: Lovelace Respiratory Research Institute NM3890116129						
Waste Stream Information						
(10) WIPP ID: SA-T001[2]				(11) Summary Category Group: S5000		
(12) Waste Matrix Code Group: Heterogeneous Debris Waste				(13) Waste Stream Name: CH Heterogeneous Debris Waste from the Lovelace Respiratory Research Institute stored at the Idaho National Laboratory		
(14) Description from the TWBIR: Heterogeneous CH debris laboratory waste from Pu aerosol preparation experiments.						
(15) Defense TRU Waste: YES	X	NO				
(16) Check One: CH	X	RH				
(17) Number of SWBs: NA		(18) Number of Drums: 10 55-gallon drums		(19) Number of Canisters NA		
(20) Batch Data Report numbers supporting this waste stream characterization: See Characterization Information Summary for correlation of containers identification numbers to batch data report numbers.						
(21) List applicable EPA Hazardous Waste Numbers:[1] D005, D006, D007, D008, D009, D011, D019 and F005						
(22) Applicable TRUCON Content Numbers: SQ 125/225						
(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-INL-020, Revision 2, May 16, 2011, Figures 1, 2, 4, 6 and 7						
(23B) Facility mission description: CCP-AK-INL-020, Revision 2, May 16, 2011, Section 4.3						
(23C) Description of operations that generate waste: CCP-AK-INL-020, Revision 2, May 16, 2011, Section 4.5						
(23D) Waste identification/categorization schemes: CCP-AK-INL-020, Revision 2, May 16, 2011, Section 4.6						
(23E) Types and quantities of waste generated: CCP-AK-INL-020, Revision 2, May 16, 2011, Section 5.2 and 5.4						

(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-INL-020, Revision 2, May 16, 2011, Section 4.8.1			
(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-INL-020, Revision 2, May 16, 2011, Section 5.1			
(25B) Waste stream volume and time period of generation: CCP-AK-INL-020, Revision 2, May 16, 2011, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-INL-020, Revision 2, May 16, 2011, Section 5.3			
(25D) Waste Process flow diagrams: CCP-AK-INL-020, Revision 2, May 16, 2011, Figure 8			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-INL-020, Revision 2, May 16, 2011, Section 5.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table 2 of the Summation of Aspects of AK Summary report: Waste Stream ID-SA-T001			
(26) Which Defense Activity generated the waste: (check one)			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology	X	Defense research and development
	Defense nuclear waste and material by products management		Defense nuclear material production
	Defense nuclear waste and materials security and safeguards and security investigations		
(27)Supplemental Documentation			
(27A) Process design documents: NA			
(27B) Standard operating procedures: See C020, C523, M020, P001, P003, P004, P005, P006, P007, P008, P009, P010, P011, P012, P013, P015, P022, P023, P024, P025,P026, P027, P028, P029,P031, P036, P041, P043, P044, P045, P046, P047, P048, P049, P050, P051, P052, P053, P054, P055, P056, P057, P058, P059, P060, P061, P062, P063, P064, P065, P066, P067, P068 and P1101 in CCP-AK-INL-020, Revision 2, Section 8.0			
(27C) Safety Analysis Reports: NA			
(27D) Waste packaging logs: See M003 and M026 in CCP-AK-INL-020, Revision 2, Section 8.0			
(27E) Test plans/research project reports: See D001, D004, D006, D007, D008, D009, D011, D012, D017, D019, D020, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D031, D032, D033 and P019 in CCP-AK-INL-020, Revision 2, Section 8.0			
(27F) Site databases: NA			
(27G) Information from site personnel: See C014, C015, C016, C017, C018, C019, C023, C024, C034, and C523 in CCP-AK-INL-020, Revision 2, Section 8.0			
(27H) Standard industry documents: in See D043, M006, P056, P057, P058, P064, P066, P067, P068, and P1101 in CCP-AK-INL-020, Revision 2, Section 8.0			
(27I) Previous analytical data: See C004 and C020, in CCP-AK-INL-020, Revision 2, Section 8.0			
(27J) Material safety data sheets: NA			
(27K) Sampling and analysis data from comparable/surrogate Waste: NA			
(27L) Laboratory notebooks: See M002, M008, M009, M010, M011, M012, M013, M014, M015, M021, M022 and M025, in CCP-AK-INL-020, Revision 2, Section 8.0			
Confirmation Information[1]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP-TP-053, Revision 11, July 20, 2011		
(29)	Visual Examination: NA		

(30) 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: 7-21-2011

Reviewed by STR (if necessary): YES [X] N/A [ ] Date: 7-25-2011

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.

(31)	(32) Jim Vernon	(33) 8-15-11
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.
(2) The ATWIR number for this waste stream at INL is to be developed. The number listed above corresponds to the SNL/NM waste stream prior to shipment to AMWTP and identified in DOE/TRU-10-3425, Annual Transuranic Waste Inventory Report-2010

CHARACTERIZATION INFORMATION SUMMARY

WSPF # ID-SA-T001

Lot 1

TABLE OF CONTENTS

CCP Characterization Information Summary Cover Page

Waste Stream #	ID-SA-T001	Lot #:	1
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Jim Vernon	Date:	8/15/2011

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:

Real-Time Radiography (RTR):

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

Non Destructive Assay (NDA):

CCP-TP-109	Rev. 8	08/10/11	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-109	Rev. 7	01/26/11	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-019	Rev. 5	09/16/09	CCP Waste Assay Gamma Spectrometer (WAGS) Operating Procedure
CCP-TP-115	Rev. 4	06/24/09	CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure

Headspace Gas Analysis:

CCP-TP-093	Rev. 15	03/10/11	CCP Sampling of TRU Waste Containers
CCP-TP-093	Rev. 14	12/29/10	CCP Sampling of TRU Waste Containers
CCP-TP-173	Rev. 1	09/30/09	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-175	Rev. 3	08/02/11	CCP Analysis of Gas Samples for VOCs by GC/MS
CCP-TP-175	Rev. 2	12/29/10	CCP Analysis of Gas Samples for VOCs by GC/MS

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 23	12/29/10	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-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-030	Rev. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-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 Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # ID-SA-T001 Lot # 1

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR				GGT BDR
							Sample	Analysis			
C080097	INNDAS110027	INRTR5110022	N/A	N/A	N/A	N/A	INHSG1101	ECL11005G	ECL11005M	IN11FG1015	N/A
C973053	INNDAW110042	INRTR5110022	N/A	N/A	N/A	N/A	INHSG1101	ECL11005G	ECL11005M	IN11FG1015	N/A
C973055	INNDAW110042	INRTR5110022	N/A	N/A	N/A	N/A	INHSG1101	ECL11005G	ECL11005M	IN11FG1015	N/A
C973057	INNDAS110080	INRTR5110056	N/A	N/A	N/A	N/A	INHSG1105	ECL11018G	ECL11018M	IN11FG5069	N/A
C973058	INNDAW110042	INRTR5110022	N/A	N/A	N/A	N/A	INHSG1101	ECL11005G	ECL11005M	IN11FG1015	N/A
C973139	INNDAW110042	INRTR5110022	N/A	N/A	N/A	N/A	INHSG1101	ECL11005G	ECL11005M	IN11FG1015	N/A
C973147	INNDAW110042	INRTR5110022	N/A	N/A	N/A	N/A	INHSG1101	ECL11005G	ECL11005M	IN11FG1015	N/A
C973151	INNDAS110028	INRTR5110022	N/A	N/A	N/A	N/A	INHSG1101	ECL11005G	ECL11005M	IN11FG1015	N/A
C973154	INNDAW110042	INRTR5110022	N/A	N/A	N/A	N/A	INHSG1101	ECL11005G	ECL11005M	IN11FG1015	N/A
SNL/NM004958	INNDAW110042	INRTR5110022	N/A	N/A	N/A	N/A	INHSG1101	ECL11005G	ECL11005M	IN11FG1015	N/A

Signature of Site Project Manager

Jim Vernon
Printed Name

8/15/2011
Date

CBS-003

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: ID-SA-T001 **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)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Acetone	Log	5	10	4.7875	1.2269	1.8460	2.0343	100	4.6052		
Benzene	Log	4	10[3]	0.7419	-1.3880	1.4259	-0.6747	10	2.3026		
Bromoform	Log	0	10	1.5790	-2.2609	2.2927	-1.2582	10	2.3026		
Butanol	Log	1	10	3.0445	-0.3640	2.0766	0.5442	100	4.6052		
Carbon Disulfide [a]	No	2	10[3]	0.4600	0.2550	0.1606	0.3353	10	N/A		
Carbon Tetrachloride	No	3	10[3]	0.2200	0.1253	0.0722	0.1614	10	N/A		
Chlorobenzene	No	0	10[3]	0.3450	0.1746	0.1398	0.2446	10	N/A		
Chloroform	No	0	10[3]	0.4600	0.2313	0.1852	0.3240	10	N/A		
Chloromethane [a]	No	2	10[3]	0.9100	0.3893	0.2767	0.5277	10	N/A		
Cyclohexane [a]	No	1	10[3]	0.5500	0.3466	0.2143	0.4538	10	N/A		
1,1-Dichloroethane	No	0	10[3]	0.2950	0.1479	0.1187	0.2072	10	N/A		
1,2-Dichloroethane	No	0	10[3]	0.5500	0.2762	0.2212	0.3869	10	N/A		
1,1-Dichloroethylene	No	0	10[3]	0.2900	0.1466	0.1171	0.2052	10	N/A		
cis-1,2-Dichloroethylene [a]	No	0	10[3]	0.6000	0.2982	0.2407	0.4186	10	N/A		
trans-1,2-Dichloroethylene	No	0	10[3]	0.5000	0.2548	0.2034	0.3565	10	N/A		
1,2-Dichloropropane [a]	No	0	10[3]	0.3550	0.1785	0.1429	0.2500	10	N/A		
Ethyl benzene	No	0	10[3]	0.3000	0.1511	0.1209	0.2116	10	N/A		
Ethyl Ether	No	0	10[3]	0.3150	0.1583	0.1273	0.2220	100	N/A		
Methanol	No	0	10	15.0000	14.9000	0.2108	14.9922	100	N/A		
Methyl Ethyl Ketone	Log	3	10	3.5973	-0.1742	1.7227	0.5792	100	4.6052		
Methyl Isobutyl Ketone	Log	1	10	3.2958	-1.1814	2.3351	-0.1601	100	4.6052		
Methylene Chloride	No	0	10[3]	0.5500	0.2817	0.2235	0.3935	10	N/A		
1,1,2,2-Tetrachloroethane	Log	0	10[3]	1.6094	-2.2966	1.9479	-1.3897	10	2.3026		
Tetrachloroethylene	No	0	10[3]	0.3150	0.1596	0.1274	0.2234	10	N/A		
Toluene	Log	10	10	8.5942	3.6730	3.6798	5.2823	10	2.3026	Yes	F005[2]
1,1,1-Trichloroethane	No	3	10[3]	0.2450	0.1329	0.0867	0.1762	10	N/A		
Trichoroethylene	No	0	10[3]	0.2900	0.1466	0.1171	0.2052	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	10[3]	0.2550	0.1290	0.1032	0.1806	10	N/A		

CTS-004

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: ID-SA-T001 **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)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
1,3,5-Trimethylbenzene [a]	No	0	10(3)	0.3050	0.1531	0.1230	0.2146	10	N/A		
1,2,4-Trimethylbenzene[a]	Log	1	10(3)	3.5264	-1.5977	2.4691	-0.3625	10	2.3026		
m/p-Xylene [b]	No	0	10(3)	0.4800	0.2411	0.1933	0.3378	10	N/A		
p-Xylene	No	0	10(3)	0.4800	0.2411	0.1933	0.3378	10	N/A		
o-Xylene	No	0	10(3)	0.5000	0.2614	0.2073	0.3651	10	N/A		

[a] These compounds are from the CH-TRAMPAC or CH-TRUCON and are flammable VOCs that do not appear in the QAPjP or the WIPP WAP. These are not part of the target analyte list, but samples may be analyzed for these compounds.

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

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) The UCL_{90} for Toluene exceeded the Transformed PRQL and is listed under 40CFR 261.30 as F005; however, the Hazardous Waste Code for Toluene has already been identified in the AK Summary Report and has been applied to the waste stream.

(3) As a result of dilution requirements for the sample, this analyte was reported as non-detected with an MDL value in excess of the PRQL. Section C4-3d of the Waste Analysis Plan allows such observations with elevated MDL values due to dilution to be discarded in calculating the mean concentration.

Signature of Site Project Manager

Jim Vernon
Printed Name

8/15/2011
Date

CBS-005

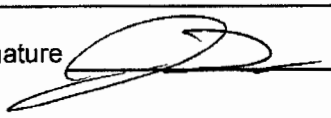
CCP Headspace Gas Summary Data

Waste Stream Number ID-SA-T001 Lot Number (s) 1 through 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
NONE	N/A	N/A	N/A

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

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

SPM Signature  Date 8/15/2011

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: ID-SA-T001 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: RTR was selected as the characterization method for this lot because the waste containers were previously packaged and RTR is an acceptable characterization method to meet all the Data Quality Objectives for NDE of waste stream ID-SA-T001.

Site Project Manager Signature	Jim Vernon	8/15/2011
	Printed Name	Date

CCP Reconciliation with Data Quality Objectives

WSPF# ID-SA-T001 Lot # 1

Sampling Completeness

RTR/VE

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10

Percent Complete: 100 (QAO is 100%)

NDA

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10

Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: 10 Number of Total Samples Collected: 10

Percent Complete: 100 (QAO is ≥90%)

Number of Valid Samples: 10 Number of Total Samples Analyzed: 10

Percent Complete: 100 (QAO is ≥90%)

Total VOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total SVOC

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

Total Metals

Number of Valid Samples: NA Number of Total Samples Collected: NA

Percent Complete: NA (QAO is ≥90%)

Number of Valid Samples: NA Number of Total Samples Analyzed: NA

Percent Complete: NA (QAO is ≥90%)

CCP Reconciliation with Data Quality Objectives

WSPF# ID-SA-T001 Lot # 1

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

CCP Reconciliation with Data Quality Objectives

WSPF# ID-SA-T001 Lot # 1

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

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

Comments:

None

Signature of Site Project Manager	Jim Vernon Printed Name	8/15/2011 Date

CBS-010

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: ID-SA-T001

Overview

Waste Stream ID-SA-T001 is a mixed Contact Handled (CH) heterogeneous debris currently stored at the Idaho National Laboratory (INL) resulting from the preparation of aerosols of TRU isotopes for inhalation studies performed at the Lovelace Respiratory Research Institute (LRRI), formerly the Inhalation Toxicology Research Institute (ITRI). The research program at LRRI focused on the human health consequences associated with inhalation of airborne radioactive materials. Waste stream ID-SA-T001 was generated as part of a Department of Energy (DOE) contract to develop experimental data that contributed to an improved understanding of the short- and long-term biological consequences of inhaling radioactive and other toxic materials associated with various energy technologies, and nuclear weapons research and development (R&D).

This waste stream was derived from the Atomic Energy Defense Activity, "defense research and development." Waste Stream ID-SA-T001 was generated at LRRI in Building 9202, Alpha Exposure Facility, Laboratories 406, 440, 445, and 446 and is contaminated with materials from atomic energy defense activities conducted in the facility and contaminated with radiological materials examined in the laboratory resulting from DOE defense research and development activities.

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number ID-SA-T001 for Contact Handled (CH) TRU heterogeneous debris. The primary source of information for this Summation is CCP-AK-INL-020, *Central Characterization Project Acceptable Knowledge Summary Report For Lovelace Respiratory Research Institute Contact-Handled Transuranic Waste Stored at Sandia National Laboratories/New Mexico Shipped to Advanced Mixed Waste Treatment Project, Waste Stream: ID-SA-T001*, Revision 2, May 16, 2011. CCP-AK-INL-020 includes information obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, interviews with cognizant personnel, and program/process documents (e.g., plans, procedures, etc.).

Waste Stream Identification Summary

Waste Stream Name:	CH Heterogeneous Debris Waste from the Lovelace Respiratory Research Institute stored at the Idaho National Laboratory
Waste Stream Number:	ID-SA-T001

Site Where TRU Waste Was Generated:	Lovelace Respiratory Research Institute Building 9202, Kirkland Air Force Base East, Albuquerque, New Mexico 87185 EPA ID # NM3890116129
Facilities Where TRU Waste Was Generated:	Building 9202, Alpha Exposure Facility, Laboratories 406, 440, 445, and 446
Site where TRU waste is Currently Stored:	Idaho National Laboratory Radioactive Waste Management Complex EPA ID # ID4890008952
Waste Stream Volume – Current:	Ten 55-gallon drums (2.08 m^3)
Waste Stream Volume – Projected:	0[1]
Dates of Waste Generation:	February 1987 – June 2002
TRUPACT II Content Code (TRUCON):	SQ125, SQ225
Summary Category Group:	S5000 – Debris Waste
Waste Matrix Code:	S5400 – Heterogeneous Debris
Waste Matrix Code Group:	Heterogeneous Debris Waste
Annual Transuranic Waste Inventory Report Identification Numbers:	SA-T001
RCRA EPA Hazardous Waste Numbers:	D005, D006, D007, D008, D009, D011, D019, and F005

[1]No further generation of TRU waste from LRRI is expected; however, there are additional drums at SNL/NM that have already been generated that may ship to INL to become part of this waste stream.

Waste Stream Description and Physical Form

The waste stream is mixed CH-TRU waste consisting of dry, heterogeneous combustible and non-combustible debris. The waste was historically stored at SNL/NM and was recently shipped to INL. This waste resulted from the preparation of aerosols of TRU isotopes for inhalation studies. The waste includes metals (iron-based metal/alloys, aluminum-based metal alloys, and non-ferrous metals), cellulosics, rubber,

plastics, organic matrices (such as organic solutions solidified in Envirostone), and inorganic materials (such as aqueous solutions solidified in plaster-of-paris).

Metals include, but may not be limited to, iron brackets, brass and copper laboratory parts, tubing, wire, fittings, stainless-steel tubing and Lovelace Aerosol Particle Separator (LAPS) foils, trays, fittings, foil and parts, aluminum parts and pieces, tin cans, and miscellaneous metal items (e.g., sharps-needles, razor blades, screwdrivers and knives, small hand tools, sonicators, hot plates, stir plates, lab jacks).

Cellulosics include, but may not be limited to, paper (e.g., paper towels, Kimwipes), cardboard boxes, cotton (e.g., cotton swabs, gauze pads), wood (e.g., wood blocks, tongue depressors), oilcloth, sandpaper, and sponges. Rubber includes, but may not be limited to, latex gloves, stoppers, pipette bulbs, and rubber bands. Plastics include, but may not be limited to, scintillation vials, pipettes, pint and quart containers, petri dishes, bags, bottles and jars, syringes (no needles), pipette tips, and centrifuge tubes. Organic materials consist of cellulosics, plastic, and rubber, as identified above.

The waste materials that comprise waste stream ID-SA-T001 have common physical form, contain similar hazardous constituents, and were generated from a single process or activity and are therefore a single waste stream. This waste was generated or contains material from LRRI inhalation studies performed in the Alpha Exposure Facility (Building 9202).

Point of Generation

Location

Waste stream ID-SA-T001 was generated at the LRRI Building 9202 in Albuquerque, NM and is currently stored at the Idaho National Laboratory RWMC.

Area and/or Buildings of Generation

Waste stream ID-SA-T001 was generated at the LRRI, Building 9202, Alpha Exposure Facility, Laboratories 406, 440, 445, and 446.

Historical Waste Management

Waste stream ID-SA-T001 has historically been managed as non-hazardous by SNL/NM in accordance with the generator site requirements and in compliance with the requirements of the New Mexico Environment Department. However, a review of available AK documentation has determined that this waste may be contaminated with HWNs D005 (barium), D006 (cadmium), D007 (chromium), D008, (lead), D009 (mercury), D011 (silver), D019 (carbon tetrachloride), and F005 listed solvents (benzene, isobutanol, and toluene). Therefore these HWN assignments have been applied to this waste stream.

Generating Process

Description of Waste Generating Processes

ID-SA-T001 was generated as a result of the preparation of aerosols of TRU isotopes for inhalation studies. Descriptions for each waste generating activity described in the AK record are provided below. All waste in this waste stream was generated from the same type of LRRI Facility processes and, therefore, contains similar materials.

TRU Isotopes Inhalation Studies

The waste was generated during studies of radioactive aerosols to measure the effect of particle size on experimental animals and to improve understanding of short and long-term biological consequences of inhaling radioactive materials associated with various energy technologies. Researchers who generated TRU waste were responsible for treatment (e.g., solidification of free aqueous liquids in plaster of paris), if required and initial packaging in accordance with established LRRI procedures.

Aerosols of various TRU isotopes (primarily Pu-239, Am-241, Cm-243, and Cm-244) were prepared in gloveboxes. For example, a stock solution of plutonium consisting of either nitric or hydrochloric acid as the solvent was used to prepare an aerosol. Ammonium hydroxide was added to the stock solution to precipitate plutonium hydroxide. The plutonium hydroxide formed a suspension (or generator solution) which was then placed in the LAPS line where the solution was nebulized, dried in a low-temperature furnace (approximately 150 degrees Celsius [°C]), fused to an oxide in a high-temperature furnace (approximately 1,050 °C), and passed through centrifuges for deposition of particles. Particles were deposited by size gradation along segmented foil strips.

Under a hood, the particles were re-suspended from the foil strips in a second generator solution using a weak ammonia surfactant and ultrasound. This generator solution was then placed in the exposure line, where it was nebulized, dried in a low-temperature furnace, mixed with dilution air, and directed to the exposure line.

Dose-Response Analysis

The objective of these studies was to determine dose-response relationships resulting from the inhalation of selected quantities of beta-emitting radionuclides in various physical and chemical forms. The fission product radionuclides studied were present in processes involving nuclear reactor fuel and were potential airborne pollutants. Both soluble and insoluble particles were used to determine the response. Extrapolation of this information relative to man helps to determine safe operating procedures and exposure limits essential to the orderly development and use of nuclear energy.

Pulmonary Toxicity Studies

The objective of these studies was to determine the toxicity of plutonium and other TRU alpha-emitting radionuclides. Dose-response studies with inhaled TRU elements using aerosols were performed to better understand the relationships among exposure atmosphere, deposition and retention patterns, radiation dose patterns, and resulting biological effects. These studies provided information that could be applied to exposure situations that could be encountered in accidents in the nuclear industry.

For inhaled alpha-emitting radionuclides, factors associated with the aerosols include the elemental characteristics of the material, chemical form, specific activity, and particle size distribution.

Solubility Experiments

The purpose of these experiments was to obtain data on the biokinetics of curium after inhalation of two individual compounds, curium oxide and curium nitrate were chosen to hypothetically bracket the range of solubility that might be expected in human exposure cases. Curium isotopes are major byproducts of the burnup of light-water-moderated nuclear reactor fuel and contribute a significant fraction of the alpha-emitting radionuclide inventory in spent nuclear fuel.

Extraction Processes

Because of the relatively short half-life of curium isotopes, in growth of plutonium daughters were a significant problem. The only efficient means to reduce the total plutonium contamination to less than one half of a percent by mass was by solvent extraction using 20 percent Di Ocytl Phosphoric Acid (DOPA) in toluene.

The curium with plutonium sample was dissolved in nitric acid. Sodium nitrate was added to oxidize the plutonium. The DOPA with toluene was added to remove the plutonium. Four extractions were needed to obtain the purity of curium needed for the experiments. The aqueous waste from this process was solidified in plaster for disposal.

Styrene Polymerization

This study was used to determine whether fluorescent polystyrene latex particles could be labeled with alpha-emitting Cm-244. Fluorescent microspheres were used as seed particles with 0.02 to 2 pico-curies (pCi) of Cm-244 per particle. The Cm was converted to a styrene soluble Cm-diketone complex and extracted with benzene. The Cm-diketone was dissolved in styrene monomer. Xylene and acetone were used to wash the mixture. The waste xylene and acetone were evaporated in a hood. The waste styrene was polymerized to a solid by using potassium persulfate.

Equipment Cleaning and Decontamination

CH-TRU waste was generated during the cleanup of gloveboxes and equipment. Various methods were used in the decontamination efforts after completing a process. A strippable paint on coating (such as Turco Peel-Off), a solution of citric acid, and other commercially available decontamination solutions were used to clean gloveboxes. Solvents, like acetone and methanol, were used to clean glassware, optics, and other equipment.

Table 1 identifies the toxicity characteristic and F-listed constituents in waste stream ID-SA-T001.

Table 1 – Toxicity Characteristic and F-Listed Constituents in Waste Stream ID-SA-T001

Constituent	CAS Number	EPA Hazardous Waste Numbers
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
Carbon Tetrachloride	56-23-5	D019
Benzene	71-43-2	F005
Isobutanol	78-83-1	F005
Toluene	108-88-3	F005

RCRA Determinations - Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

Waste generated in this waste stream does not qualify for any of the exclusions outlined in 40 CFR 260 or 261. Real Time Radiography (RTR) was used to verify that the waste stream is not a liquid waste and does not contain explosives, non-radioactive pyrophoric materials, compressed gases or reactive waste. Therefore, this waste stream does not exhibit the characteristic for ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

This waste 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 is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change. Although oxidizers and ignitable liquids were identified as being used in the LRRI facility (e.g., americium nitrate, curium nitrate, benzene, toluene), these

reagents were used in small quantities as needed, and should only be present as trace contaminants. LRRI generated TRU waste to meet WIPP/DOE certification requirements prior to shipment to Sandia/NM. Absorbent material (e.g., Envirostone [plaster-of-paris], Saf-T-Set [organic polymer}) was used to solidify generator solutions prior to packaging.

To ensure the waste does not exhibit the characteristic of ignitability, liquids in excess of TSDF-WAC limits will be removed or immobilized, and compresses gasses (e.g., aerosol cans) will be removed or vented prior to WIPP disposal. Therefore, this waste does not exhibit the characteristic of ignitability (D001). (References C003, C007, C018, D002, D013, D015, D021, D027, M002, M003, M006, M011, P002, P003, P008, P031, and P045)

Corrosivity

This waste does not exhibit the characteristic of corrosivity as defined in 40 CFR 261.22. LRRI generated TRU waste to meet WIPP/DOE certification requirements prior to shipment to Sandia/NM. Potentially corrosive reagents were managed in the laboratory; however, these materials were neutralized, absorbed, deactivated, and solidified, as necessary. Absorbent material (e.g., Envirostone, Saf-T-Set) was used to solidify generator solutions prior to packaging (e.g., ammonium hydroxide, hydrochloric acid, nitric acid). The waste materials are not liquid and RTR was performed to verify the absence of prohibited liquids.

To ensure the waste does not exhibit the characteristic of corrosivity, liquids in excess of TSDF-WAC limits will be removed or immobilized prior to WIPP disposal. Therefore, this waste does not exhibit the characteristic of corrosivity (D002). (References C003, C007, C015, C018, D001, D002, D011, D015, D033, M003, M006, M009, M010, M011, M012, M013, P002, P003, P008, P009, P015, P023, P025, P031, and P045)

Reactivity

This waste stream does not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. Reactive materials including cyanides, sulfides, and explosives were not identified in the AK documentation as being disposed. LRRI generated TRU waste to meet WIPP/DOE certification requirements prior to shipment to Sandia/NM. Absorbent material (e.g., Envirostone, Saf-T-Set) was used to solidify generator solutions prior to packaging. RTR was performed to verify the absence of prohibited liquids.

To ensure the waste does not exhibit the characteristic of reactivity, liquids in excess of TSDF-WAC limits will be removed or immobilized and compresses gasses (e.g., aerosol cans) will be removed or vented prior to WIPP disposal. Therefore, this waste does not

exhibit the characteristic of reactivity (D003). (References C003, C007, C017, C018, C020, D002, D004, D015, M003, M006, M011, P002, P003, P031, P045).

Toxicity Characteristic

This waste stream exhibits the characteristic of toxicity per 40 CFR 261.24. The toxicity characteristic contaminants fall into two categories; metals and organics. Where a constituent has been identified and there is no quantitative data available to demonstrate that the concentration is below regulatory threshold, the applicable EPA HWN is applied to the waste stream.

Based on the evaluation of the AK source documentation, this waste stream contains or is contaminated with toxicity characteristic metals. Barium (D005) was found in some sample suspensions and as a surrogate for radium. Cadmium (D006) was used in inhalation toxicity and promethium studies. Chromium (D007) was used to label red blood cells in inhalation toxicity studies. Lead (D008) was used as shielding and in bricks. Mercury (D009) was found in thermometers, batteries and fluorescent light bulbs. Silver (D011) was in membrane filters and solder. Therefore, EPA HWNs D005, D006, D007, D008, D009, and D011 are assigned to waste stream ID-SA-T001 (References C002, C003, C004, C007, C008, C014, C016, C050, D014, D017, D024, D031, M002, M007, M010, P007, and P013).

The AK identified the potential presence of additional organic toxicity characteristic compound, carbon tetrachloride (D019) which was used in inhalation studies. Benzene (D018) was also identified. Since the more specific F-listed EPA HWN has been assigned for benzene, assignment of the corresponding toxicity characteristic HWN is not required. Therefore, only HWN D019 is assigned to waste stream ID-SA-T001 (References C002, C003, C004, C007, C008, C014, C016, D014, D024, D031, D036, DR001, M002, M006, M007, M010, P008, P013, P020, P036, and P065).

Listed Waste

F-Listed Waste

Waste stream ID-SA-T001 was mixed with or derived from F-listed hazardous waste from non-specific sources as listed in Title 40 CFR 261.31 (References C014, C015, C016, C017, C024, C523, M002, M009, P004, P008, and P009).

The F005-listed solvents benzene, isobutanol, and toluene were used as organic solvents in the laboratory. Therefore, EPA hazardous waste number F005 is assigned to this waste stream. (References C014, C015, C016, C017, C024, C523, M002, M009, P004, P008, and P009)

F003 constituents, including acetone, methanol, and xylene were also used in the Alpha Exposure Facility. These solvents are listed solely as ignitable in the liquid form. The waste stream does not exhibit the characteristic of ignitability because it is not liquid;

therefore, F003 is not assigned. (References C014, C016, C017, M002, P004, P008, P009, and P015)

The following F-listed constituents contaminate the waste and are applied.

(F005)
benzene, isobutanol, and toluene

U, K, and P-Listed Chemicals

Waste stream ID-SA-T001 does not contain and was not mixed with a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33).

Beryllium and beryllium compounds may contaminate this waste stream. The beryllium contamination in the waste is less than 1%. Based on the AK documentation reviewed, the form of beryllium used does not meet the definition of commercial chemical product beryllium powder (40 CFR 261.33). Therefore, the waste stream does not meet the definition of P015 waste. (Reference C023, D003, D008, D010, D012, D017, D023, D024, D026, D032, D033, and M010)

The review of the AK source documentation did not identify the disposal of unused hydrofluoric acid (U134) or disposal of materials contaminated with spills of this acid; therefore the EPA HWN U134 is not assigned to waste stream ID-SA-T001.

Waste stream ID-SA-T001 does not include any of the manufacturing process wastes from the specific industries or sources listed in 40 CFR 261.32.

Waste Stream ID-SA-T001is not assigned any U-, K-, or P-Listed EPA HWNs.

Headspace Gas/Volatile Organic Compound Information

Headspace gas sampling was performed on 10 containers in this waste stream. No new EPA HWNs were assigned as a consequence of headspace gas sampling and analysis. The UCL_{90} value for toluene (F005) exceeded the Program Required Quantitation Limit (PRQL), which is consistent with AK as HWN F005 was assigned to this waste stream. There were no tentatively identified compounds (TICs). The specifics of this information are included in the attached Characterization Information and Summary report.

Other Waste Streams Generated from the Same Buildings and Processes

Two additional debris waste streams were generated in Building 9202 at the LRRI (ID-NTS-ITRI-S5310 and LA-MHD05-ITRI.001). Both waste streams are similar in physical form to ID-SA-T001 (i.e., debris). Waste stream LA-MHD05-ITRI.001 has identical

HWNs assigned; however ID-NTS-ITRI-S5310 has been characterized as non-hazardous. Based on the AK documentation reviewed, the ID-NTS-ITRI-S5310 waste stream was generated exclusively from a plutonium aerosol process that did not use or generate hazardous waste.

Conclusion

The EPA HWNs that apply to the waste stream are: D005, D006, D007, D008, D009, D011, D019, and F005.

Polychlorinated Biphenyls (PCBs)

With the exception of suspect polychlorinated biphenyl (PCB) fluorescent light ballasts, no other sources for PCBs in waste stream ID-SA-T001 were identified in the AK source documents. Ballasts in fluorescent light fixtures could contain PCBs. These light fixtures are typically located outside the gloveboxes and were not expected to have entered the TRU waste stream. However, an individual familiar with LRRI processes and TRU waste generation identified the potential presence of light ballasts. Therefore, containers with PCB waste, identified during RTR, will be managed as a TSCA waste under 40 CFR 761 (Reference C014).

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and characterization activities. RTR was performed on each container to verify the absence of prohibited items. The following items have been determined as not present in the waste:

- Liquid waste
- Non-radioactive pyrophoric materials
- Hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous waste)
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, or other wastes
- Explosives or compressed gases
- Waste with PCBs not authorized under an EPA PCB waste disposal authorization
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity
- Waste that has ever been managed as high-level waste and waste from tanks specified in Table C-8 of the WIPP HWFP, unless specifically approved through a Class 3 permit modification.
- Any waste container from a waste stream (or waste stream lot) which has not undergone either radiographic or visual examination of a statistically representative subpopulation of the waste stream in each shipment, as described in WIPP HWFP.

Each container of waste is certified and shipped only after RTR:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by RTR are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

Justification for the Selection of RTR

Containers in this waste stream were characterized using RTR. RTR was selected as the characterization method for this lot because the waste containers were previously packaged and RTR is an acceptable characterization method to meet all the Data Quality Objectives for NDE of Waste Stream ID-SA-T001.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameters (WMPs) for waste stream ID-SA-T001 were estimated based on the descriptions of waste observed during the preliminary RTR of the waste performed at SNL. This waste stream is greater than 50 percent by volume material that meets the criteria for debris.

Waste items were categorized into one or more of the following WMPs: iron-based metals/alloys, aluminum-based metals/alloys, other metals, other inorganic materials, cellulosics, rubber, plastics (waste materials), inorganic matrix, and organic matrix. Weights were calculated based on volume averages for each waste parameter. The calculations conclude that the relative waste weight percentages for inorganic waste materials and organic waste materials for Waste Stream ID-SA-T001 are 78.0 percent and 22.0 percent, respectively. The results of the assessment are presented in Table 2, Waste Stream ID-SA-T001 Waste Material Parameter Estimates.

Table 2. Waste Stream ID-SA-T001 Waste Material Parameter Estimates

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	41.8 %	17.2 – 61.2 %
Aluminum-based Metals/Alloys	2.6 %	0 – 6.7 %
Other Metals	10.2 %	0 – 23.0 %
Other Inorganic Materials	6.8 %	0 – 33.3 %
Cellulosics	7.2 %	0 – 36.5 %
Rubber	4.3 %	0 – 13.3 %
Plastic (waste materials)	7.8 %	0 – 20.0 %
Organic Matrix	2.7 %	0 – 9.0 %
Inorganic Matrix	16.5 %	0 – 44.3 %
Soils/Gravel	0%	0%

List of AK Sufficiency Determinations

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

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

Radionuclide Information

In 2010 all of the drums were assayed prior to shipment to INL. The results showed thorium as the largest contributor to the radiological activity and overshadowed all other radionuclides. For these calculations, the thorium contribution was removed. With the thorium removed, the two most prevalent radionuclides in this waste stream, by weight, reported in AK are uranium (U)-238 and plutonium (Pu)-239. Americium (Am)-241 and Curium (Cm)-244 are the two predominant radionuclides by activity. The isotopes expected to be present in this waste stream are listed in Table 3.

The 10 WIPP tracked radionuclides are presented in Table 3 in addition to other radionuclides that are expected to be present in the waste stream.

Table 3. Summary of ID-SA-T001 Radionuclides

WIPP Tracked Radionuclides	Additional Reported Radionuclides	Additional Reported Radionuclides
Am-241	U-232	Pa-233
Pu-238	Am-243	Pb-210
Pu-239	Np-237	Po-210
Pu-240	Pu-241	Ra-226
Pu-242 (not anticipated)	U-235	
U-233	Cm-243	
U-234	Cm-244	
U-238	Cm-245	
Cs-137 (not anticipated)	Co-60	
Sr-90 (not anticipated)	Eu-154	

Payload management will not be utilized for this waste stream.

Attachment 1

AK SOURCE DOCUMENTS, SUPPLEMENTAL DOCUMENTATION

Source Document No.	AK #	Title	Document Number	Author	Date
C002	NA	TRU Mixed Waste Characterization Survey	NA	J.J. Thompson	11/30/1988
C003	NA	Applicable Protocols and SOP's for TRU Waste Drums [#53-#76]	NA	Ed Barr	11/1/1994
C004	S9	Status of LRRI TRU Waste	NA	Joe Jones	3/3/1995
C007	NA	ITRI Input to the Preparation of Part A of the WIPP RCRA Permit Application	NA	J.J. Thompson	3/9/1988
C008	NA	ITRI Input to the Preparation of Part A of the WIPP RCRA Permit Application	NA	J.J. Thompson	3/9/1988
C013	NA	Quality Assurance Support for Transfer of LRRI TRU Waste to SNL/NM	NA	K. McMahon	1/23/1995
C014	S7	Interview of Carla Mewhinney: Lovelace Respiratory Research Institute (LRRI) Transuranic Waste	NA	David Guerin	6/18/2003
C015	S7	Response from J.J. Thompson: LRRI TRU Waste Questionnaire	NA	David Guerin	6/25/2003
C016	S7	Response from Juan Romero: LRRI TRU Waste Questionnaire	NA	David Guerin	6/25/2003
C017	S7	Response from Raymond A. Guilmette: LRRI TRU Waste Questionnaire	NA	David Guerin	6/25/2003
C018	S7	LRRI TRU Waste	NA	J.J. Thompson e-mail to David Guerin	8/28/2003
C019	S7	Email from J. Thompson To Betty Humphries re: packaging of TRU Drums	NA	J.J. Thompson	8/4/2004
C020	S2, S9,	Characterization of Sample Drums Memo from SNL/NM	NA	Kathey Chavez, Sonoya Shanks	6/7/1999
C023	S7	Email from M. Hoover to Betty Humphrey, re: Process Knowledge for LTTR TRU Waste	NA	Mark Hoover	6/1/2004
C024	S7	Email from M. Spoemer to B. Humphrey, re: LRRI TRU Waste	NA	Michael Spoemer	10/15/2003

Source Document No.	AK #	Title	Document Number	Author	Date
C034	S7	Email re: LRRI TRU Waste Stock Solution of Plutonium	NA	C. Mewhinney	12/10/2009
C050	S7	ITRI TRU Waste Questionnaire	NA	Calum Poh	7/1/2003
C523	S2, S7	Memo to J. Luginbyhl, RE: Interview with Dr. James J. Thompson, Sandia Laboratories/New Mexico Regarding Hazardous Waste Codes for LRRI Transuranic Waste (TRU)	NA	Betty Humphrey	12/9/2009
D001	S5	"A Rapid Screening Method for Determining Plutonium on Filters in the Presence of Large Amounts of NaCl," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: D. G. Thomassen, L. J. Shyr, W. E. Bechtold, and P. L. Bradley	LMF-129	G. J. Newton, M. D. Hoover, and A. F. Eidson	12/1990
D002	NA	Quality Assurance Plan for Certification of ITRI-Generated TRU Waste	NA	Lovelace ITRI	1/1983
D003	NA	"Response of Rat Lungs to Relatively Low Lung Burdens of Inhaled Beryllium Metal," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: D. G. Thomassen, L. J. Shyr, W. E. Bechtold,and P. L. Bradley	LMF-129	G.L. Finch; P.J. Haley, M.D. Hoover, A.F. Eidson, and R.G. Cuddihy	12/1990
D004	S5	"Hazard-Function Model for Deterministic Effects of Chronic Alpha Plus Beta Irradiation of the Lung," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: D. G. Thomassen, L. J. Shyr, W. E. Bechtold, and P. L. Bradley	LMF-129	B. R. Scott	12/1990
D006	S5	"Effects of Combined Exposure of Rats to 239PuO_2 and Whole-Body X-Irradiation," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: D. G. Thomassen, L. J. Shyr, W. E. Bechtold, and P. L. Bradley	LMF-129	D.L. Lundgren, et al.	12/1990

Source Document No.	AK #	Title	Document Number	Author	Date
D007	S5	"Radiation-Induced Mesotheliomas in Rats," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: D. G. Thomassen, L. J. Shyr, W. E. Bechtold, and P. L. Bradley	LMF-129	F.F Hahn, P.J. Haley, A. F. Hubbs, M.D. Hoover, and D.L. Lundgren	12/1990
D008	S5	"Interactions Between Inhaled Beryllium Metal and Plutonium Dioxide in Rats: Effects on Lung Clearance," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: D. G. Thomassen, L. J. Shyr, W. E. Bechtold, and P. L. Bradley	LMF-129	G. L. Finch, et. al.	12/1990
D009	S5	"A Comparison of Liver Tumors in Dogs After Inhalation of a Beta- (144Ce) or an Alpha- (238Pu) Emitting Radionuclide," in Inhalation Toxicology Research Institute Annual Report 1989-1990, Editors: D.G. Thomassen, et al.	LMF-129	B.A. Muggenburg, F.F. Hahn, W.C. Griffith, R.A. Guilmette, and B.B. Boecker	12/1990
D010	NA	"Prelimanary Evaluation of Optical Particle Monitoring for Real-Time Detection of Radioactive Aerosol Releases," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: D. G. Thomassen, L. J. Shyr, W. E. Bechtold, P. L. Bradley	LMF-129	M.D. Hoover, G.J. Newton	12/1990
D011	S5	Biokinetics of Inhaled $239Pu0_2$ in the Beagle Dog: Effect of Aerosol Particle Size	NA	R. A. Guilmette, J.H. Diel, B. A. Muggenburg, J.A. Mewhinney, B.B. Boeker, and R. O. McClellan	1/1984
D012	S5	"Generation and Characterization of a Beryllium Metal Aerosol for Inhalation Toxicity Studies" in Inhalation Toxicology Research Institute Annual Report, 1986-1987, Editors: J.D. Sun and J.A. Mewhinney	LMF-120	M.D. Hoover, J.A. Mewhinney, and G. L. Finch	12/1987

Source Document No.	AK #	Title	Document Number	Author	Date
D013	NA	Biokenetics and Dosimetry of Inhaled Cm Aerosols in Beagles: Effect of Aerosol Chemical Form	NA	R.A. Guilmette and G.M. Kanapilly	12/1988
D014	NA	"Cytotoxicity and Dissolution of 241AmO2 in Cultured Dog Alveolar Macrophages" in Inhalation Toxicology Research Institute Annual Report, 1986-1987, Editors: J. D. Sun and J. A. Mewhinney	LMF-120	J.A. Mewhinney, A. Taya	12/1987
D015	NA	Los Alamos TRU Waste Certification Plan, Attachment #10, LRRI	WCP-ITRI-ATT-01	NA	9/1984
D017	S5	"Toxicokinetics of Beryllium Following Acute Inhalation of BeO by Beagle Dogs. II.," in Inhalation Toxicology Research Institute Annual Report, 1986-1987, Editors: J. D. Sun and J. A. Mewhinney	LMF-120	G. L. Finch, J.A. Mewhinney, M.D. Hoover, A.F. Eidsion, P.J. Haley, and D.E. Bice	12/1987
D018	S5	"Age-Related Effects on the Disposition and Dosimetry of Inhaled 239Pu or 144Ce in Immature or Aged Beagle Dogs," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: J.D. Sun and J.A. Mewhinney	LMF-120	R.A. Guilmette, B.B. Boeker, B. A. Muggenburg, F. F. Hahn, and R.O. McClellan	12/1987
D019	S5	"Toxicity Studies of Inhaled Beta-Emitting Radionuclides – Status Report," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: J.D. Sun and J.A. Mewhinney	LMF-120	F.F. Hahn, B.B. Boecker, D.L. Lundgren, N.A. Gillett, R.O. McClellan, B.A. Muggenburg, and M.B. Snipes	12/1987
D020	S5	"Toxicity of Inhaled Alpha-Emitting Radionuclides – Status Report," in Inhalation Toxicology Research Institute Annual Report, 1989-1990, Editors: J.D. Sun and J.A. Mewhinney	LMF-120	B.A. Muggenburg, et. al.	12/1987

Source Document No.	AK #	Title	Document Number	Author	Date
D021	S5	"Systematic Absorption of Americium from the Nasal Airways of Dogs Exposed to Intranasally to Notrate and Oxide Aerosols," Inhalation Toxicology Research Institute Annual Report, 1987-1988 Editors: J.A. Mewhinney, W.E. Bechtold, J.D. Sun, and T.A. Coons	LMF-121	R.A. Guilmette, B.A. Muggenburg, and R.G. Cuddihy	12/1988
D022	S5	"Toxicity Studies of Inhaled Beta-Emitting Radionuclides – Status Report," in Inhalation Toxicology Research Institute Annual Report, 1987-1988 Editors: J.A. Mewhinney, W.E. Bechtold, J.D. Sun, and T.A. Coons	LMF-121	F.F. Hahn, et. al.	12/1988
D023	S5	"In Virto Responses of Canine Alveolar Lymocytes to $BeSO_4$ After Inhalation Exposure to BeO: Comparisons with Human Beryllious," in Inhalation Toxicology Research Institute Annual Report, 1987-1988, Editors: J.A. Mewhinney, et. al.	LMF-121	P.J. Haley, G.L. Finch, J.A. Mewhinney, F.F. Hahn, M.D. Hoover, and D.E. Bice	12/1988
D024	NA	"Generation and Characterization of Beryllium Oxide Aerosols for Animal Inhalation Studies," in Inhalation Toxicology Research Institute Annual Report 1984-1985, Editors: M.A. Medinsky and B.A. Muggenburg	LMF-114	M.D. Hoover, et. al.	12/1985
D025	S5	"Retention of 134Cs-Labeled Aluminosilicate Particles Inhaled by Dogs and Guinea Pigs – Simulation Model Projections for Humans," in Inhalation Toxicology Research Institute Annual Report 1984-1985, Editors: M.A. Medinsky and B.A. Muggenburg	LMF-114	M.B. Snipes and R.O. McClellan	12/1985

Source Document No.	AK #	Title	Document Number	Author	Date
D026	NA	"Inhalation of BeO in Dogs: A Pilot Study," in Inhalation Toxicology Research Institute Annual Report 1984-1985, Editors: M.A. Medinsky and B.A. Muggenburg	LMF-114	J.A. Mewhinney, M.D. Hoover, B.J. Greenspan, F.F. Hahn, and A.F. Eidson	12/1985
D027	S5	"Biokinetics of Inhaled Curium Compounds in Dogs," in Inhalation Toxicology Research Institute Annual Report, 1984-1985, Editors: M.A. Medinsky and B.A. Muggenburg	LMF-114	R.A. Guimette	12/1985
D028	S5	"Use of Bronchopulmanary Lavage as a Bioassay Tool for Estimating Pu Lung Burdens," in Inhalation Toxicology Research Institute Annual Report, 1984-1985, Editors: M.A. Medinsky and B.A. Muggenburg	LMF-114	R.A. Guilmette, B.A. Muggenburg, and B.L Cambron	12/1985
D029	S5	"Toxicity Studies of Inhaled Beta-Emitting Radionuclides – Status Report," in Inhalation Toxicology Research Institute Annual Report 1984-1985, Editors: M.A. Medinsky and B.A. Muggenburg	LMF-114	F.F. Hahn, et. al.	12/1985
D030	S5	"Toxicity of Inhaled Alpha-Emitting Radionuclides – Status Report," in Inhalation Toxicology Research Institute Annual Report 1984-1985, Editors: M.A. Medinsky and B.A. Muggenburg	LMF-114	B.A. Mugggenburg, et. al.	12/1985
D031	S5	"Characteristics of Radioactive Particles Released from the Chernobyl Nuclear Reactor," in Inhalation Toxicology Research Institute Annual Report 1985-1986, Editors: B.A. Muggenberg and J.D. Sun	LMF-115	R.G. Cuddihy, G.L. Finch, G.J. Newton, F.F. Hahn, J.A. Mewhinney, and S.J. Rothenberg	12/1986

Source Document No.	AK #	Title	Document Number	Author	Date
D032	S5	"Characterization of Aerosols Produced During Sawing and Milling of Beryllium Metal and Alloys," in Inhalation Toxicology Research Institute Annual Report, 1985-1986, Editors: B.A. Muggenberg and J.D. Sun	LMF-115	M.D. Hoover, G.L. Finch, J.A Mewhinney, and A.F. Eidson	12/1986
D033	S5	"In Vitro Dissolution Studies in Beryllium Aerosols," in Inhalation Toxicology Research Institute Annual Report, 1985-1986, Editors: B.A. Muggenberg and J.D. Sun	LMF-115	G.L. Finch, J.A. Mewhinney, A.F. Eidson, M.D. Hoover, and S.J. Rothenberg	12/1986
D036	NA	Inhalation Toxicology Research Institute FY-1995 Budget Submission	NA	NA	1995
D040	NA	Waste-Specific Data Package CH-TRAMPAC for Sandia National Laboratories/New Mexico (Draft)	NA	Weston Solutions, Inc.	11/2006
D043	S8	Calibration Traceability Certificate	ISO/IEC 17025	Dively Scale Co., Inc.	4/6/2004
DR001	NA	Acceptable Knowledge Source Document Discrepancy Resolution - Waste Codes	DR001	James Luginbyhl	2/14/2011
M001	NA	Radiological Survey Forms	NA	NA	10/1996
M002	S11	Curium Isotope Inventory Log	NA	H.C. Yeh, R.D. Brodbeck	3/9/1983
M003	S4	LRRI TRU Waste Reference Notebook: TRU Drum Inspection and Venting Log; Disposal Request for Radioactive or Mixed Waste; Summary of Isotopes, Curie Content, Contact Reading, and Contents; DR Reviewer Signature Sheet; Completeness Checklist for Rad/Mixed Waste Disposal Request; Waste Operations Container Tracking Log; Data Evaluation Summary; Nuclide Supplemental Report, RTR Photographs; and LRRI TRU Waste Transfer to SNL/NM: Item Checklist RTR Analysis	NA	Sandia National Laboratories	various

Source Document No.	AK #	Title	Document Number	Author	Date
M006	S8	Material Safety Data Sheets (MSDSs) for: Aquasol, Diff-Quick, Ultima Gold, Opti-Fluor, Radiacwash, Dust-Off, Turco Peel-Off, Radiacwash, KODAK Autoradiography Emulsion Type NTB-3	NA	Various manufactures	NA
M007	NA	TRU Waste Drum/Package Record	Attachment to HP-27	Various LRRI Personnel	Various
M008	S11	TRU Level Waste Log	Notebook No. 5667	A.S. Shankar and B. Ritchey	8/09/1991
M009	S11	Misc. 239Pu Isotope Inventory Log [excerpts]	Notebook No. 2892	Hsu-Chi Yeh and R.D. Brodbeck	10/22/1984
M010	S11	Thorium/Uranium Aerosols [excerpts]	Notebook No. 2960	H. C. Yeh and R.D. Brodbeck	1/16/1989
M011	S11	LRRI Radioactive Scint Vials – Regulated and Non-Regulated [excerpts]	Notebook No. 6179	J.J. Thompson, T.T. Simpson, and M. Hall	7/20/1993
M012	S11	Americium Isotope Inventory Log [excerpts]	Notebook No. 2280	H.C. Yeh and R.D. Brodbeck	8/30/1995
M013	S11	Misc. Isotope Inventory Log [excerpts]	Notebook No. 4375	H.C. Yeh and R.D. Brodbeck	1/4/1989
M014	S11	252 Californium Isotope Inventory Log [excerpts]	Notebook No. 4264	H.C. Yeh and R.D. Brodbeck	8/16/1988
M015	S11	TRU Drum Waste Logs	Notebook No. 4570	A. Shankar, B. Ritchey, and C. Pohl	9/9/9191
M016	NA	Excel Spreadsheet – Rad Data	NA	James Luginbyhl	11/14/2008
M020	S2	Disposal Requests for Payload Containers: LA060573; LA060598; LA060599	SF-2042-TRA (0502 Rev. 3)	Don Baker IV	5/26/2004
M021	S11	Notes from logbooks with pictures of drums: Drum 82 and Drum 79	NA	NA	9/12/2005
M022	S11	Log Book Notes on opening of Drum # 57, 58, 59, 60, 61, 64, and 68	NA	NA	2/6/1995
M024	NA	VHS Tapes for LRRI Drums: 51, 59, 53, 60 repeat of 57 & 68 after items removed AND LRRI Drums 72, 55, 70, 67, 54, 64, 63, 66, 58, and 68	NA	NA	3/23/1995
M025	S11	Log book Notes TRU Drums with pictures and CD labeled "LRRI, RTR Drums 79, 81, and 82	NA	NA	9/12/2007

Source Document No.	AK #	Title	Document Number	Author	Date
M026	S4	TRU Waste Package Records for Drums 81, 82, 79, Notes on drums: 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, and 77	NA	Don Baker IV	8/15/2002
M1053	NA	SNL/NM Transuranic Waste Repackaging Plan	NA	Regulated Wastel/Nuclear Material Disposition Department	4/30/2008
P001	S2	Health Protection Operations Procedures: Management of TRU Waste	HP-27	NA	4/1983
P002	NA	Health Protection Operations Procedures: Management of TRU Waste	HP-27	NA	5/30/1986
P003	S2	Health Protection Operations Procedures: Transuranic Waste Management	WM-15	NA	5/27/1993
P004	S2	The Removal of Plutonium Contamination from a Curium Stock Solution by Solvent Extraction	SOP No. 0302	Rick D. Brodbeck	2/1/1983
P005	S2	The Dissolution of the Curium Oxide Supply	SOP No. 0301	Rick D. Brodbeck	2/1/1983
P006	S2	Resuspension of Pu LAPS Foils for Animal Exposure	SOP No. 0398	Carla Headrick	5/18/1984
P007	S2	The Preparation of $Cm(OH)^3$ Colloidal Suspensions	SOP No. 0304	Rick D. Brodbeck	3/30/1984
P008	S2	Radiation Dose Patters of Inhaled 243,244CmOx in Beagle Dogs	Protocol No. FY82-216	R. A. Guilmette	3/11/1982
P009	S2	Efficacy of Implantable Zn-DTPA in Decorporating 243Cm Inhaled as Oxide by Fischer-344 Rats	Protocol No. FY82-246	R. A. Guimette and B. A. Muggenberg	5/18/1982
P010	S2	Radiation Dose Distribution in Nonhuman Primates Following Inhalation of 241-AmO_2 [with 2 amendments]	Protocol No. FY83-308	J. A. Mewhinney	3/20/1983-4/28/1983
P011	S2	Retention, Distribution and Effects of 239PuO_2 in Rats with Pulmanary Fibrosis [with 5 amendments]	Protocol No. FY83-317	D.L. Lundgren, F.F. Hahn, J.A. Pickrell, and J.L. Mauderly	11/4/1983-11/7/1987
P012	S2	In Vitro Dissolution of Am Compounds	Protocol No. FY83-336	J. A. Mewhinney	4/29/1983
P013	S2	Biokenetics and Microdosimetry of Inhaled 239PuO_2 in the Immature Beagle Dog	Protocol No. FY84-079	R. A. Guilmette and B. A. Muggenburg	8/27/1984

Source Document No.	AK #	Title	Document Number	Author	Date
P015	S2	Production of 244Cm-Labeled Fluorescent Polystyrene Latex Microspheres	Protocol No. FY86-039	R. Guilmette	6/10/1986
P019	S5	Acute Exposure of Rats to $239PuO_2$-A Pilot Study	Protocol No. FY87-017	M.D. Hoover and D.L. Lundgren	12/11/1986
P020	NA	Nasal absorption of Compounds of Uranium, Plutonium, and Americium in the Beagle Dog [with 3 amendments]	Protocol No. FY87-019	R.A. Guilmette, B.A. Muggenburg, and R.G. Cuddihy	2/28/1987-2/1/1996
P022	S2	Subcellular Distribution of 241Am in Lungs Following Inhalation of 241Am Nitrate by Beagle Dogs	Protocol No. Fy88-031	A. Taya and J.A. Mewhinney	4/13/1988
P023	S2	An Interlaboratory Collaboration for the Preparation of Labeled Bone Matrix Radionuclide Standards	Protocol No. FY89-004	R.A. Guilmette and B.B. Boecker	11/28/1988
P024	S2	In Vitro Dissolution of Cm_2O_3 Aerosol Using a Phagolysosomal Simulant Solvent System [with 6 amendments]	Protocol No. FY89-042	R.A. Guilmette, S.Y. Helfinstine, and R.F. Henderson	12/6/1989-11/14/1989
P025	S2	Pilot Study for Validating the Methods for Exposing and Counting Dogs that Inhaled $239PuO_2$ Aerosols	Protocol No. FY91-012	R.A. Guilmette, M.B. Snipes, M.D. Hoover, B.A. Muggenburg, and W.C. Griffith	2/14/1991
P026	S2	Effects of Inhaled $239PuO_2$ and Cigarette Smoke in Rats [with 4 amendments]	Protocol No. FY91-016	G.L. Finch, et. al.	9/24/1991-5/12/1994
P027	S2	Actinide Bone Mineral Interactions In Vitro	Protocol No. FY91-030	R.A. Guilmette, P.E. Sebring, and K.R. Maples	6/5/1991
P028	S2	Combined Exposure of Rats to 239PuO2 and NNK [with 5 Amendments]	Protocol No. FY91-029	D.L. Lundgren, S.A. Belinsky, K.J. Nikula, M.D. Hoover, and W.C. Griffith	1/2/1992-6/28/1993
P029	S2	Protocol for 241 AmO_2 Radiation Dose Pattern Studies, with Addendum to $241AmO_2$ Radiation Dose Pattern Study in Young Adult Beagles Protocol, by J. Mewhinney	NA	C. Lustgarten, C. H. Hobbs, J.A. Mewhinney, D.O. Slauson, and B.A. Muggenburg	7/3/1974 & 9/14/1982

Source Document No.	AK #	Title	Document Number	Author	Date
P031	S2	Disposal of Hazardous Liquid Wastes (3/9/82 & 4/18/88); Disposal of Radioactive/Hazardous Wastes (7/19/91)	HPO# 031	Health Protection Operations	see title
P032	NA	LRRI Hazard Communication Program	HPO# 048	LRRI Health Protection Operations	5/7/1986
P036	S2	Disposal of Liquid Scintillation Counting (LSC) Vials	HPO# 049	Health Protection Operations	6/10/1986 & 2/6/1991
P038	NA	Radioactive Materials Management Area (RMMA)	HPO# 038	Health Protection Operations	9/30/1991 & 6/30/1992
P039	NA	LRRI Radioactive and Hazardous Waste Minimization Policy	HPO# 054	Health Protection Operations	1/17/1989
P041	S2	Hazardous Liquid Waste Pickup on Tuesdays (2/4/92); Satellite Container Management of Liquid Hazardous Waste (9/3/93)	HPO# 066	Health Protection Operations	see title
P043	S2	Procedures for the Use of Pass-Through Room in Bldg. 9202	HPO# 21	Health Protection Operations	8/21/1981
P044	S2	Handling Procedures for Human and Non-Human Primate Tissues and Body Fluids used in Research	HPO# 062	Health Protection Operations	10/15/1990
P045	S2	Health Protection Operations Procedures; WM-15: Transuranic TRU Waste Management;	HPO SOP No. WM-15, Rev 2	Joe Mauderly, and J.J. Thompson	5/27/1993
P046	S2	Health Protection Operations Procedures; WM-8: Procurement Procedures for Waste Management Program	WM-8, Rev 4	Joe Mauderly and Bruce Boecker	2/26/1995
P047	S2	Health Protection Operations Procedures; HP-27: Management of TRU Waste	LRRI SOP No. HP-27, Rev. 1	Joe Mauderly and J.J. Thompson	5/30/1986
P048	S2	Procurement Process	AOP 01-08, Rev 2	NA	3/29/2004
P049	S2	Radioactive Waste/Nuclear Material Disposition Department, Off-Site Shipments	FOP 02-02, Rev. 1	Jeff Jarry	4/22/2004
P050	S2	Radioactive Waste/Nuclear Material Disposition Dept.; Measuring and Testing Equipment Calibration	FP 00-06, Rev. 2	James Thompson	10/13/2003

Source Document No.	AK #	Title	Document Number	Author	Date
P051	S2	ES&H Manual; Section 19B-Radioactive Waste Management	MN471001, Issue K	Phil Zelle	3/10/2004
P052	S2	Plan-WasteMgmt-002, R.4.1.; LANL Waste Acceptance Criteria	OST 404-00-02	Julie Minton-Hughes	8/12/2005
P053	S2	ES&H Document Release; Operation of the Real-Time Radiography Equipment at the 6635 Facility	OP471562 Rev. 0	Gerald Stoker	1/25/1995
P054	S2	ES&H Document Release; Radioactive and Mixed Waste Package Handling at the 6635 Facility for Real-Time Radiography	OP471561 Rev. 0	Roland Seylar	1/25/1995
P055	S2	Health Physics Procedures & Laboratory Safety Manual		James Thompson	1/1975
P056	S2, S8	SNL/NM; Q^2 Drum Counter Sample Analysis	RPSD-09-06, Issue 01	S.B. Ebara	4/1/1998
P057	S2, S8	SNL/NM; Setup and Acceptance Testing of the Portable Gamma Spectrometer	RSPD-26-01, Issue 2	A. H. Mohagheghi	8/26/1998
P058	S2, S8	SNL/NM; Calibration of the Portable Gamma Spectrometer	RSPD-26-02, Issue 3	K.I. Chavez	11/6/1998
P059	S2	SNL/NM; Routine QC & Maintenance of the Portable Gamma Spectrometer	RSPD-26-03, Issue 02	A. H. Mohagheghi	9/4/1997
P060	S2	SNL/NM; Set-Up And Acceptance Testing of the Q^2 System	RSPD-27-01, Issue 01	A. H. Mohagheghi	3/6/1998
P061	S2	SNL/NM; Calibration of the Q^2 System	RSPD-27-02, Issue 02	S.B. Ebara	2/12/1999
P062	S2	SNL/NM; Routine QC & Maintenance of the Q^2 Gamma Spectrometer	RSPD-27-03, Issue 01	S.B. Ebara	12/23/1997
P063	S2	SNL/NM; In-Situ Gamma Measurements	RSPD-30-02, Issue 03	M.D. Starr	7/15/1998
P064	S2, S8	Eberline; Calibration of the Gamma Spectroscopy System	OP-09-12	Flore Caporuscio	11/9/2001
P065	S2	Eberline: Operation of the gamma Spectroscopy System	OP-09-10	Flore Caporuscio	7/2/2001
P066	S2, S8	Eberline: Analysis of Spectroscopy Data	OP-09-11	Jeff Brown	5/4/2001
P067	S2, S8	SNL/NM; Radiation Protection Operating Procedure; Operation of the E 600	RPO-03-331, Issue 2	Hazel Barclay	2/26/2003

Source Document No.	AK #	Title	Document Number	Author	Date
P068	S2, S8	SNL/NM; Radiation Protection Line Support Procedure; Preoperational Checks for Portable Hand Held Survey Instruments	RPO-03-330, Issue 6	Dann Ward	4/25/2002
P1101	S2, S8	SNL/NM Waste Handling	FOP 00-02	Regulated Waste/Nuclear Material Disposition Department	6/26/2006

Alphanumeric Designations

C Correspondence
D Document
DR Discrepancy Resolution
I Internal Procedures and Notes
M Miscellaneous
P Published Documents
U Unpublished Documents

AK Numbers

S1 Process Design Documents
S2 Standard Operating Procedure
S3 Safety Analysis Reports
S4 Waste Packaging Logs
S5 Test plans/research project reports
S6 Site databases
S7 Information from site personnel
S8 Standard industry documents
S9 Previous analytical data
S10 Material safety data sheets
S11 Laboratory Notebooks
S12 Comparable or surrogate sampling and analysis data
N/A Not applicable