ENTERED

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

AUG 16 2011

AUG 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 Central Characterization Project - Los Alamos National Laboratory
WSPF Number, LA-MHD09.001, Heterogeneous Debris Waste from TA-50

Dear Mr. Kieling:

The Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number LA-MHD09.001, Heterogeneous Debris Waste from TA-50. Enclosed is a copy of the form as required by Section C-5a of the Waste Isolation Pilot Plant Hazardous Waste Facility Permit No. NM4890139088-TSDF.

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

Sincerely,

Edward Ziemianski
Interim Manager

Enclosure

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

cc: w/o enclosure
J. R. Stroble, CBFO ED
N. Castaneda, CBFO ED
M. Pinzel, CBFO ED
G. Basabilvazo, CBFO ED
S. McCauslin, CBFO ED
G. Henckel, DOE-LANL ED
L. Bishop, DOE-LANL ED
CBFO M&RC
*ED denotes electronic distribution

110830

CBFO:NTP:JRS:GS:11-1721:UFC 5900.00

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: LA-MHD09.001							
(2) Generator site name: Los Alamos National Laboratory					(4)Technical contact: Sue Peterman		
(3) Generator site EPA ID: NM0890010515					(6) Technical contact phone number: (505)-606-2344		
(5) Date of audit report approval by New Mexico Environment Department (NMED): 8/27/04,6/23/05, 8/31/06, 6/2/08, 9/2/08, 7/24/09, 9/22/2010							
(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-012, CCP/Los Alamos National Laboratory (LANL) Interface Document, Revision 8, December 29, 2010 CCP-AK-LANL-004 Central Characterization Project Acceptable Knowledge Summary Report For Los Alamos National Laboratory TA-50 Mixed Transuranic Waste, Waste Streams: LA-MIN03-NC.001, LA-CIN02.001, LA-MHD09.001 Revision 9, August 26,2009							
(8) Did your facility generate this waste	YES	X	NO				
(9) If no, provide the name and EPA ID of the original generator: NA							
Waste Stream Information							
(10) WIPP ID: LA-MHD09.001[1]					(11) Summary Category Group: S5000		
(12) Waste Matrix Code Group: Heterogeneous Debris Waste					(13) Waste Stream Name: Heterogeneous Debris Waste from TA-50		
(14) Description from the TWBIR: Mixed heterogeneous combustible and non-combustible debris from the TA-50-01 RLWTF, TA-50-37 CAI, and TA-50-69 WCRR Facility generated during facility and equipment maintenance, decontamination and decommissioning (D&D), and waste repackaging activities							
(15) Defense TRU Waste:	YES	X	NO				
(16) Check One:	CH	X	RH				
(17) Number of SWBs 11	(18) Number of Drums[3] 171				(19) Number of Canisters NA		
(20) Batch Data Report numbers supporting this waste stream characterization:							
(21) List applicable EPA Hazardous Waste Numbers:[2] D004, D005, D006, D007, D008, D009, D010, D011, D022, D027, D028, D029, D030, D037, D043, F001, F002, F004, F005, F006, F007, and F009							
(22) Applicable TRUCON Content Numbers: LA 154, LA 215, LA 216, LA 217, LA 218, LA 219, LA 220, LA 223, LA 225, and 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-LANL-004, Revision 9, August 26, 2009, Figures 2							
(23B) Facility mission description: CCP-AK-LANL-004, Revision 9, August 26, 2009, Sections 4.2.1 and 4.2.2							
(23C) Description of operations that generate waste: CCP-AK-LANL-004, Revision 9, August 26, 2009, Section 4.4							
(23D) Waste identification/categorization schemes: CCP-AK-LANL-004, Revision 9, August 26, 2009, Section 4.3.1							
(23E) Types and quantities of waste generated: CCP-AK-LANL-004, Revision 9, August 26, 2009, Section 4.3.5							
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-LANL-004, Revision 9, August 26, 2009, Section 4.3.6							

(24) Waste certification procedures: CCP-TP-030, Revision 29, CCP CH TRU Waste Certification and WWIS/WDS Data Entry, April 26,2011			
(25)Required Waste Stream Information			
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-LANL-004, Revision 9, August 26, 2009, Section 7.1			
(25B) Waste stream volume and time period of generation: CCP-AK-LANL-004, Revision 9, August 26, 2009, Section 7.2			
(25C) Waste generating process description for each building: CCP-AK-LANL-004, Revision 9, August 26, 2009, Section 4.4			
(25D) Waste Process flow diagrams: CCP-AK-LANL-004, Revision 9, August 26, 2009, figures 3,4, and 5			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-LANL-004, Revision 9, August 26, 2009, Section 7.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table 2 of the Summation of Aspects of AK Summary Report: Waste Stream LA-MHD09.001.			
(26) Which Defense Activity generated the waste: (check one)			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
X	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: See D071 and D072 in CCP-AK-LANL-004, Revision 9, Section 8.0			
(27B) Standard operating procedures: See D108, D113, D115, D116, M041, M087, M089, M090, M178, M190, M202, P007, P008, P013, P014, P015 and P016 in CCP-AK-LANL-004, Revision 9, Section 8.0			
(27C) Safety Analysis Reports: See D005 in CCP-AK-LANL-004, Revision 9, Section 8.0			
(27D) Waste packaging logs: See D074, D113, D115, D117 and M227 in CCP-AK-LANL-004, Revision 9, Section 8.0			
(27E) Test plans/research project reports: NA			
(27F) Site databases: See M018, M219 and M220 in CCP-AK-LANL-004, Revision 9, Section 8.0			
(27G) Information from site personnel: See C014, C017, C026, C029, C035, C037, C054, C056, C061 and C064 in CCP-AK-LANL-004, Revision 9, Section 8.0			
(27H) Standard industry documents: NA			
(27I) Previous analytical data: NA			
(27J) Material safety data sheets: NA			
(27K) Sampling and analysis data from comparable/surrogate Waste: NA			
(27L) Laboratory notebooks: NA			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP-TP-053, Revision 11, July 20, 2011, CCP Standard Real-Time Radiography (RTR) Inspection Procedure		
(29)	Visual Examination: NA		

(30) Comments:

For a list of the waste characterization procedures used, the associated reference number and date of the respective procedures, see the list of procedures on the attached CIS.

Reviewed by AK Expert:	**YES** [X]		**Date:** 6/15/2011	
Reviewed by STR (if necessary):	**YES** [X]	**N/A** [ ]	**Date:** 6/22/2011	

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) Sue Peterman	(33) 8/1/11
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) The waste was previously identified as the following WIPP ID numbers but was included in the LA-MHD09.001 ID number with the 2010 revision of the ATWIR: LA-TA-50-12, LA-TA-50-15, LA-TA-50-16 and LA-MHD09.001

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

(3) This waste stream currently consists of 27 55-gallons drums, 9 85-gallon drums, and 11 other containers totaling an estimated 36 cubic meters of waste, which is equivalent to approximately 171 55-gallon drums

CHARACTERIZATION INFORMATION SUMMARY

WSPF # LA-MHD09.001

Lot 1

TABLE OF CONTENTS

CCP Characterization Information Summary Coversheet

Waste Stream # LA-MHD09.001 Lot #: 1

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

SPM Review: Richard Kantrowitz Date: 7/25/2011

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

Non Destructive Assay (NDA):

CCP-TP-063	Rev. 11	10/22/08	CCP Operating the High Efficiency Neutron Counter Using NDA2000
CCP-TP-063	Rev. 12	11/17/10	CCP Operating the High Efficiency Neutron Counter Using NDA2000
CCP-TP-063	Rev. 13	04/11/11	CCP Operating the High Efficiency Neutron Counter Using NDA2000
CCP-TP-103	Rev. 7	11/16/06	CCP Data Reviewing, Validating and Reporting Procedure for the High Efficiency Neutron Counter Using NDA2000
CCP-TP-103	Rev. 8	07/12/10	CCP Data Reviewing, Validating and Reporting Procedure for the High Efficiency Neutron Counter Using NDA2000
CCP-TP-103	Rev. 9	03/14/11	CCP Data Reviewing, Validating and Reporting Procedure for the High Efficiency Neutron Counter and the Super High Efficiency Neutron Counter Using NDA2000

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-173	Rev. 1	09/30/09	CCP Analysis of Gas Samples for VOCs by GC/FID
CCP-TP-175	Rev. 1	03/29/10	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. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 18	08/09/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/08/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 20	09/09/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 27	12/14/09	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. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 21	01/26/09	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-012	Rev. 7	05/08/08	CCP/Los Alamos National Laboratory (LANL) Interface Document
CCP-PO-012	Rev. 8	12/29/10	CCP/Los Alamos National Laboratory (LANL) Interface Document

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # LA-MHD09.001 Lot # 1

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR		
							Sample	Analysis	
56511	2LANDA0717	LA-RTR2-10-0143	N/A	N/A	N/A	Yes*	LAHSG11001	ECL11001M	ECL11001G
56514	2LANDA0717	LA-RTR2-10-0143	N/A	N/A	N/A		LAHSG11001	ECL11001M	ECL11001G
56515	2LANDA0522	LA-RTR2-09-0181	N/A	N/A	N/A		LAHSGS100001	ECL10001M	ECL10001G
56517	2LANDA0717	LA-RTR2-10-0143	N/A	N/A	N/A		LAHSG11001	ECL11001M	ECL11001G
84607	1LANDA1206	LA-RTR2-10-0033	N/A	N/A	N/A		LAHSG11001	ECL11001M	ECL11001G
85122	2LANDA0605	LA-RTR2-10-0050	N/A	N/A	N/A		LAHSG11001	ECL11001M	ECL11001G
85160	2LANDA0613	LA-RTR2-10-0068	N/A	N/A	N/A		LAHSG11001	ECL11001M	ECL11001G
85710	2LANDA0618	LA-RTR2-10-0065	N/A	N/A	N/A		LAHSGS100002	ECL10028M	ECL10028G
S820647	2LANDA0717	LA-RTR2-10-0143	N/A	N/A	N/A		LAHSG11001	ECL11001M	ECL11001G
S820648	2LANDA0522	LA-RTR2-09-0181	N/A	N/A	N/A		LAHSGS100001	ECL10001M	ECL10001G

* Requires overpack.

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

7/25/2011
Date

CTS003

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: LA-MHD09.001

Waste Stream Headspace Gas 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 Hazardous Waste Number
Benzene	Log	4	10	2.30	-1.68	1.90	-0.85	10	2.30		
Bromoform	Log	0	10	-0.69	-4.04	1.27	-3.49	10	2.30		
Carbon Tetrachloride	Log	0	10	-0.60	-3.67	1.18	-3.15	10	2.30		
Chlorobenzene	Log	2	10	-0.29	-2.94	1.11	-2.45	10	2.30		
Chloroform	Log	1	10	-0.29	-2.97	1.08	-2.50	10	2.30		
Cyclohexane[a]	Log	0	10	0.30	-2.69	1.15	-2.18	10	2.30		
1,1-Dichloroethane	Log	1	10	0.26	-3.05	1.31	-2.48	10	2.30		
1,2-Dichloroethane	Log	2	10	0.14	-2.52	1.20	-2.00	10	2.30		
1,1-Dichloroethylene	Log	0	10	0.26	-3.30	1.34	-2.71	10	2.30		
cis-1,2-Dichloroethylene[a]	Log	0	10	-0.16	-2.75	1.02	-2.30	10	2.30		
trans 1,2-Dichloroethylene	Log	0	10	0.53	-2.78	1.25	-2.23	10	2.30		
Ethyl benzene	Log	3	10	0.59	-2.46	1.64	-1.75	10	2.30		
Ethyl Ether	Log	0	10	0.56	-3.03	1.39	-2.42	10	2.30		
Methylene chloride	Log	3	10	0.18	-2.09	1.23	-1.55	10	2.30		
1,1,2,2-Tetrachloroethane	Log	0	10	-0.69	-3.66	1.14	-3.16	10	2.30		
Tetrachloroethylene	Log	1	10	-0.29	-3.22	1.14	-2.72	10	2.30		
Toluene	Log	8	10	5.39	0.05	3.24	1.47	10	2.30		
1,1,1-Trichloroethane	Log	3	10	-0.22	-2.94	1.55	-2.27	10	2.30		
Trichloroethylene	Log	0	10	-0.05	-3.40	1.28	-2.84	10	2.30		
Trichlorofluoromethane[a]	Log	0	10	-0.16	-3.05	1.20	-2.53	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	1	10	-0.60	-3.42	1.24	-2.87	10	2.30		
1,2,4-Trimethylbenzene[a]	Log	2	10	0.05	-2.78	1.21	-2.25	10	2.30		
1,3,5-Trimethylbenzene[a]	Log	2	10	0.14	-3.01	1.22	-2.48	10	2.30		
m,p-Xylenes[b]	Log	4	10	1.46	-2.10	1.65	-1.38	10	2.30		
o-Xylene	Log	2	10	0.10	-2.41	1.36	-1.82	100	4.61		
Acetone	Log	8	10	3.04	0.49	1.68	1.23	100	4.61		
Butanol	Log	5	10	4.79	-0.90	2.49	0.19	100	4.61		
Methanol	Log	1	10	4.30	2.66	0.76	3.00	100	4.61		
Methyl ethyl ketone	Log	5	10	1.46	-1.10	1.96	-0.24	100	4.61		

CH5004

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: LA-MHD09.001 **Waste Stream Headspace Gas 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 Hazardous Waste Number
Methyl isobutyl ketone	Log	1	10	0.18	-3.17	1.36	-2.58	10	2.30		
Chloromethane[e]	Log	3	10	2.27	-1.62	2.05	-0.73	10	2.30		
Carbon Disulfide[e]	Log	4	10	0.62	-2.19	1.42	-1.57	10	2.30		
1,2-Dichloropropane[e]	Log	0	10	-0.11	-3.18	1.17	-2.66	10	2.30		
Formaldehyde[c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hydrazine[d]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[a] These compounds are from CCP-PO-003, CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC) and are flammable VOCs that do not appear in CCP-PO-001. These are not part of the target analyte list, but samples may be analyzed for these compounds.

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

[c] Required only for homogenous solids and soil/gravel waste from Savannah River Site.

[d] Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

[e] These compounds are reported by the Laboratory and are included for completeness.

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

7/25/2011
Date

CTS005

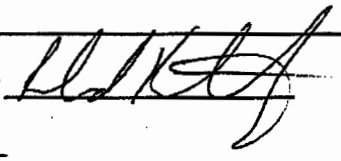
CCP Headspace Gas Summary Data

Waste Stream Number LA-MHD09.001 Lot Number (s) 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 7/25/2011

CI5006

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: LA-MHD09.001 Lot(s)#: 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 performed on any of the 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 a characterization method for this Lot because the waste was already packaged and RTR meets all the Data Quality Objectives for NDE for waste stream LA-MHD09.001.

Site Project Manager Signature | Richard Kantrowitz (Printed Name) | 7/25/2011 (Date)

CCP Reconciliation with Data Quality Objectives

WS# LA-MHD09.001 Lot # 1

Sampling Completeness

RTR:

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%)

CIS008

CCP Reconciliation with Data Quality Objectives

WS# LA-MHD09.001 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

WS# LA-MHD09.001 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

Richard Kantrowitz
Printed Name

7/25/2011
Date

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: LA-MHD09.001

Overview:

Waste stream LA-MHD09.001 is Contact Handled (CH) mixed transuranic (TRU) heterogeneous combustible and non-combustible debris waste generated from the Technical Area (TA)-50 Facilities at the Los Alamos National Laboratory (LANL). Waste is generated during TA-50-01 Radioactive Liquid Waste Treatment Facility (RLWTF), TA-50-37 Controlled Air Incinerator (CAI), and TA-50-69 Waste Characterization, Reduction, and Repackaging (WCRR) Facility maintenance, decontamination and decommissioning (D&D), and waste repackaging activities. The RLWTF treats radioactive liquid generated during site operations in a manner to ensure protection of workers, the public, and the environment. The CAI was used to test the reduction and stabilization of contaminated TRU wastes by incineration. The WCRR Facility was originally designed for the size reduction of non-routine waste items (e.g., gloveboxes, equipment) that were too large to fit into standard waste containers, such as 55-gallon drums and standard waste boxes (SWBs). The facility currently performs visual examination (VE), repackaging, and prohibited item dispositioning of TRU waste. LANL's inventory of TRU waste destined for disposal at WIPP is stored at the Material Disposal Area G at TA-54.

This waste stream consists of TRU mixed waste generated in support of Department of Energy (DOE) defense nuclear waste and materials by-products management. The TA-50 Facilities treated and processed liquid and solid wastes from facilities that performed defense activities (e.g., TA-55 Plutonium Facility). Therefore, waste stream LA-MHD09.001 is defense related waste.

This Summation of the Acceptable Knowledge (AK) Summary Report includes information to support Waste Stream Profile Form (WSPF) number LA-MHD09.001 for mixed TRU debris waste. The primary source of information for this Summation is CCP-AK-LANL-004, *Central Characterization Project Acceptable Knowledge Summary Report For Los Alamos National Laboratory TA-50 Mixed Transuranic Waste, Waste Streams: LA-MIN03-NC.001, LA-CIN02.001, LA-MHD09.001, Revision 9, dated August 26, 2009*. CCP-AK-LANL-004 includes information obtained from numerous sources, including facility safety basis documentation, historical documents, generator and storage facility waste records, material safety data sheets (MSDSs), and interviews with facility personnel.

Waste Stream Identification Summary:

Waste Stream Name:	Heterogeneous Debris Waste from TA-50
Waste Stream Number:	LA-MHD09.001

Site Where TRU Waste Was Generated:	Los Alamos National Laboratory
Facility Where TRU Waste Was Generated:	TA-50 Facilities
Site Where TRU Waste is Currently Stored:	Los Alamos National Laboratory
Waste Stream Volume – Current:	171 55-gallon drums[1] 11 SWBs
Waste Stream Volume – Projected:	1 55-gallon drum/year totaling an estimated .21 cubic meters of waste
Dates of Waste Generation:	May 1980 to present
TRUCON Content Numbers:	LA 154, LA 215, LA 216, LA 217, LA 218, LA 219, LA 220, LA 223, LA 225, and SQ 154
Summary Category Group:	S5000
Waste Matrix Code:	S5400
Waste Matrix Code Group:	Heterogeneous Debris Waste
Annual Transuranic Waste Inventory Report Identification Number:	LA-TA-50-12, LA-TA-50-15, LA-TA-50-16, LA-MHD09.001
RCRA Environmental Protection Agency (EPA) Hazardous Waste Numbers (HWNs):	D004, D005, D006, D007, D008, D009, D010, D011, D022, D027, D028, D029, D030, D037, D043, F001, F002, F004, F005, F006, F007, and F009

Waste Stream Description and Physical Form:

Waste stream LA-MHD09.001 consists of combustible waste materials including cardboard, cellulosics, cheesecloth, cloth, filter media/paper, Kimwipes, leaded gloves, mops, paper, plastics (e.g., bags, bottles, piping, wrap), personal protective equipment (PPE), prefilters, rags, rubber (e.g., gaskets), sandpaper, Styrofoam, tape, wood, and wood-based high-efficiency particulate air (HEPA) filters. Non-combustible waste materials including aluminum foil, cans (e.g., tin), equipment and instruments (e.g., balance, pump, scale, smoke detector, vacuum gage), flanges, glass (e.g., jar, vials,

[1] This waste stream currently consists of 27 55-gallons drums, 9 85-gallon drums, and 11 other containers totaling an estimated 36 cubic meters of waste, which is equivalent to approximately 171 55-gallon drums (the 11 SWBs are addressed separately above).

windows), graphite, lead (e.g., bricks, shielding), quartz tubes, platinum metal, piping, scrap metal, size reduced gloveboxes and tanks, sources, stainless-steel, tools, and valves. The waste may also include small amounts of homogeneous solids such as absorbent/solidification material (e.g., Portland cement, vermiculite, Waste Lock 770 [polymer-based absorbent]) used to solidify liquids (e.g., grease, oils), oxides (e.g., source material), and sand. Any payload container consisting of more than 50 percent by volume of homogeneous solids will be excluded from this waste stream.

Waste stream LA-MHD09.001 is comprised of greater than 50 percent by volume heterogeneous inorganic and organic debris. Therefore, this waste stream is assigned Waste Matrix Code S5400, Heterogeneous Debris. The debris waste was generated during the TA-50 waste treatment process and associated facility and equipment maintenance, D&D, and waste repackaging operations. Based on both the commingling of liquid and solid waste from contributing buildings and TA-50's internal interconnected operations, the debris waste described by this report contains the same or similar material, physical form, and hazardous constituents. Therefore, the waste materials that comprise waste stream LA-MHD09.001 have common physical form, contain similar hazardous constituents, and were generated from a single process or activity and are therefore a single waste stream.

Point of Generation

Location

Waste stream LA-MHD09.001 was generated at LANL in Los Alamos, New Mexico. The waste is currently stored at the LANL TA-50 Facilities and the Material Disposal Area G at TA-54.

Area and/or Building of Generation

Waste stream LA-MHD09.001 was generated in TA-50-01 RLWTF, TA-50-37 CAI, and TA-50-69 WCRR Facility during facility and equipment maintenance, D&D, and waste repackaging activities at LANL.

Generating Process

Description of Waste Generating Processes

Numerous LANL buildings and operations contribute liquid and solid waste to TA-50 for waste treatment. The main treatment operation concentrated and removed radioactive components from liquid wastes that were piped or trucked to RLWTF from various locations at LANL. The pretreatment operation concentrates and removes radioactive components from TA-55 liquid wastes. Maintenance and D&D activities at the RLWTF also generate solid debris wastes. The CAI was used to test the reduction and stabilization of radioactively contaminated wastes by incineration. The WCRR Facility was originally designed for the size reduction of non-routine waste items (e.g.,

gloveboxes, equipment) that were too large to fit into standard waste containers, such as 55-gallon drums and SWBs. The facility currently performs VE, repackaging, and prohibited item dispositioning of TRU waste.

Main Treatment Operation in the RLWTF

Radioactively contaminated liquid meeting the TA-50 waste acceptance criteria was sent to the TA-50-1 RLWTF for treatment. Liquid waste from the influent tanks flowed to a flash mixer where it was mixed with floc-forming chemicals and discharged to a clariflocculator. Mixing chambers mixed the dry chemical from a given feeder with water by mechanical agitation. Each chamber was equipped with a small, motor-driven mixer. Solution from each mixing chamber flowed by gravity into a flow splitter box (one per mixing chamber) which split the flow between the two flash mixers. The coagulant used was Betz Polymer 1110 (nonhazardous polymer). This polymer was manually mixed with water in a 30 cubic foot plastic tank and added directly to one of the flow splitter boxes using a small pump.

Inside the clariflocculator, calcium carbonate and ferric hydroxide floc particles form as the waste was gently mixed by rotating paddles moving between fixed baffle plates. The heavy floc particles incorporating waste contaminants fell through the bottom of the flocculation tank and settled in the bottom of the outer (clarifier) tank, forming sludge. A sludge rake collected the sludge in a conical central sump of the clarifier tank, from where it could be drained to the sludge holding tank at TA-50-2 by opening a manually operated valve. The tank was equipped with a mixer, and it had draw-off taps at six different elevations to allow separation of the supernatant and the settled sludge. The supernatant was pumped back to the influent tanks.

Sludge collected in the TA-50-2 sludge tank contained about 5 to 10 percent solids. The sludge was dewatered to about 25 to 40 percent solids via a vacuum filtering operation conducted in Room 116B of TA-50-01. Sludge from the TA-50-2 sludge tank was pumped to the vacuum filter basin. The vacuum filter consisted of a 3-foot long steel drum covered with stainless steel screen that rotated inside a covered steel basin. A mixture of perlite (lava particles) or diatomaceous earth and water was introduced to the filter basis to precoat the filter. Then, sludge was pumped into the filter basin. As the drum rotated, a vacuum was created inside it by a vacuum pump. The internal vacuum removed the water from the sludge that clung to the outside of the drum.

The dewatered sludge was removed from the drum surface by a manually retractable knife scraper and discharged into a 55-gallon drum through a manually retractable discharge chute that clamped to the top of the drum. Approximately 10 pounds of dry Portland cement was placed under the sludge and another 10 pounds on top of the sludge for moisture absorption. The sludge waste is characterized separately under approved CCP waste stream LA-MIN03-NC.001.

TA-55 Pretreatment Operation in the RLWTF

The pretreatment process in the RLWTF concentrates and removes radioactive components from liquid wastes that were trucked and are now piped to TA-50 from the Plutonium Facility (Building PF-4) located at TA-55. For several years beginning in 1979, acidic process liquids from nitrate operations were introduced into the main treatment operations of the RLWTF (see above).

Since 1983, TA-55 caustic and acidic process liquids have been fed into two holding tanks located in underground vault TA-50-66 and then into Room 60 of the RLWTF where the pretreatment process is performed. A thin sludge is generated from treating blended acidic and caustic process liquids by either of two batch methods. One method uses calcium hydroxide (lime), ferric sulfate, a flocculation aid, and enough sodium hydroxide to bring the pH to 11.5 or greater. The other method uses a mixture of ferrous sulfate, ferric sulfate, sodium hydroxide, and water. This method also increases the pH to 11.5 or greater and adds a flocculation aid. Either method produces a thin sludge containing approximately 5 percent to 25 percent solids that is always alkaline and compatible with Portland cement.

The thin sludge is subsequently cemented to form TRU cement monoliths. The cemented monoliths are produced by tumbling 55-gallon drums containing measured quantities of sludge, Portland cement, vermiculite, and sodium silicate. The cementation process uses three pre-packaged 94-pound bags of Portland cement. Approximately 4.5-pounds of vermiculite are added to the 55-gallon drum to serve as an absorbent and as an aggregate. A premeasured amount of sodium silicate (2.5-gallons) is added to the dry ingredients to assure incorporation of sludge components that may not be compatible with Portland cement. Between 22- to 23-gallons of sludge is then added to the drum, and the drum lid is installed. The assembled drum is slowly tumbled end-over-end while an operator watches for leaks. The drum is then allowed to cure. The cemented waste is characterized separately under approved CCP waste stream LA-CIN02.001.

Facility and Equipment Maintenance, D&D, and Waste Repackaging Activities

Debris waste from the TA-50-01 RLWTF, TA-50-37 CAI, and TA-50-69 WCRR Facility is generated during facility and equipment maintenance, D&D, and waste repackaging activities.

Facility and equipment maintenance activities conducted in the TA-50 Facilities include cleaning and decontamination, equipment inspection and replacement, and general housekeeping. Cleaning and decontamination activities include physical wiping and the use of cleaning solutions (e.g., Fantastik or water) to remove potential contamination and to restore work areas and equipment to their original condition. Paper, plastic, and rags with a cleaning solution are used to remove or contain the spread of contamination. Equipment inspection, calibration, and replacement activities are

performed to ensure continued operability and process efficiency. General housekeeping includes cleaning, repair, and organization of the facility/infrastructure.

D&D activities are undertaken to remove contaminated portions of buildings and processes. These buildings and processes house the equipment and material used to perform the TA-50 operations, and the waste generated during D&D operations contains the same chemical and radiological contaminants. Decontamination activities are used to accomplish several goals, such as reducing occupational exposures, limiting potential releases of radioactive materials, permitting the reuse of components, and reducing the amount of TRU waste generated. Decontamination activities include the use of mechanical and chemical cleaning techniques such as brushing, stripping, washing, and wiping to remove contamination. Commercially available, non-hazardous cleaning products, such as Fantastik, were used to remove loose contaminants. Decommissioning activities include the physical removal of contaminated equipment, furnishings, machinery, tanks, and support systems. Tanks and equipment are size reduced as necessary and packaged for disposal (size reduction was often performed at the WCRR Facility). Secondary waste such as combustibles, metal, and plastic generated during D&D activities is expected to be part of the waste.

Repackaging activities are performed in the TA-50-69 WCRR Facility which was established in 1979 as the Size Reduction Facility (SRF) to size reduce non-routine items such as decommissioned gloveboxes, ductwork, and process equipment to fit in 55-gallon drums or SWBs. The SRF historically combined waste from multiple facilities including waste from the RLWTF and the CAI, and these containers are included in the TA-50 debris waste stream. In 1993, the name of the SRF was changed to the WCRR Facility to reflect the expanded remediation and repackaging mission. Size reduction operations at the WCRR Facility were discontinued around 1997. The WCRR Facility is used to perform VE, repackaging, and prohibited item dispositioning of TRU waste. Current repackaging procedures ensure that waste items placed into a new container originate from a single parent container. Therefore if repackaging is necessary, the original characterization is retained. Some secondary waste generated during remediation/repackaging activities may be added to the waste containers including the absorbent Waste Lock 770, rags and wipes containing Fantastik used during decontamination, PPE, and rigid liner lids that have been cut into pieces.

Facilities Contributing Liquid and Solid Waste to the TA-50 Facility

Numerous facilities at LANL generated liquid and solid waste that was either piped or trucked to the TA-50 Facility for treatment or repackaging since the 1970s. The following provides a brief summary of the facilities and operations identified in the AK documentation.

TA-55, Plutonium Facility

Since 1979, the Plutonium Facility (Building PF-4) located at TA-55 has been used for the extraction and recovery of plutonium from residues and scraps generated from

operations at various LANL facilities and other DOE sites in the defense complex. Most processes at TA-55 that generate waste sent to TA-50 for treatment or repackaging are solely defense related. Although non-defense related processes are also conducted at TA-55, any waste from non-defense work is commingled with defense waste prior to being treated or repackaged at the TA-50 Facility TA-55 has conducted more than 170 individual operations; each associated with a process/status (P/S) code. The LANL Material Accountability and Safeguards System and associated P/S codes were developed to track nuclear materials throughout the main operational areas in TA-55. The main operational areas contributing waste to TA-50 include Chloride, Metal, Miscellaneous, Nitrate, Pyrochemical, Special, and Pu-238 operations.

Debris waste contaminated with or generated by TA-55 Chloride, Metal, Miscellaneous, Nitrate, Pyrochemical, Special, and Pu-238 operations is also sent to the WCRR Facility for size reductions and repackaging. The debris waste would contain or be contaminated with the same chemical and radiological constituents present in the liquid waste discharged to the RLWTF for treatment.

TA-2, Omega Site

Primary facilities located at the Omega Site were the Omega West Reactor (OWR) and an equipment building. The OWR was a water-cooled uranium-fueled reactor facility used for research and irradiation studies. The equipment building housed the ion-exchange columns used for cleanup of primary circulating cooling water and makeup water. Waste water was collected in tanks and transported by vehicle or later by pipeline to the RLWTF for final treatment.

TA-3-16, Van de Graff Facility

Building TA-3-16 had one radioactive liquid waste pipeline connection to the RLWTF. Small amounts of tritium, iodine-125, and sulfur-35 were discharged. Rooms discharging include labs, mechanical rooms, a dark room, target preparation areas, workrooms, and assembly areas. Specific sources of discharge originated from film developer rinse water, a condensed water drain, radioactive pipe strainer discharge, emergency showers, floor washings, and hand washing.

TA-3-29, Chemistry and Metallurgy Research (CMR) Building

The CMR Building, located in TA-3, was an R&D facility composed of six interconnected, but different experimental areas. Wing 9 housed an irradiated-fuel examination facility. Five other wings (Wings 2, 3, 4, 5, and 7) housed numerous and varied R&D and analytical chemistry operations. Liquid wastes were discharged to holding tanks that drained to an underground pipeline system terminating at the RLWTF. Debris waste from this facility, including gloveboxes removed during D&D activities, was also sent to the WCRR Facility for size reduction and repackaging.

TA-3-34, Cryogenics "B"

Building TA-3-34 had one drainage source to the radioactive liquid waste system that flowed into the RLWTF from sinks in laboratories and shops that may have been radioactively contaminated.

TA-3-35 (Press Building), TA-3-40 (Physics Building), TA-3-66 (Sigma Building), and TA-3-141 (Rolling Mill Building), Sigma Complex

The function of the Sigma Complex was to develop and fabricate materials for LANL programs. The Sigma Building housed seven specific sections where development work on both radioactive and non-radioactive materials was performed. The Press Building (TA-3-35) housed a portion of the Nuclear Fuels Section and was the facility where all enriched uranium-loaded graphite or carbide fuel elements were manufactured. A sink and drain connection to the industrial waste sewer system was provided for disposal of radioactive and/or chemical waste at the Press Building. Debris waste from the Press Building has also been sent to the WCRR Facility for repackaging. The Rolling Mill Building (TA-3-141) housed parts of the Nuclear Fuels Section, Coatings Section, and Metal Processing Section.

Electrochemistry wastes were generated in two buildings, TA-3-40 and TA-3-66. The Print Circuit Board Shop, located in the Physics Building, generated significant quantities of acid/base wastes heavily contaminated with copper. The Electrochemistry Section, located in the Sigma Building, performed electropolishing and acid etching. Spent concentrated plating solutions were transferred to 55-gallon drums, which were trucked to TA-50 for treatment in the Batch Treatment process. The resulting sludge and liquid from the cyanide destruction process were discharged to the treatment tanks at TA-54, were allowed to evaporate, and were subsequently managed in a different waste stream. However, if the liquid fraction met discharge limits, it could have also been released to the RLWTF. Debris waste from these facilities has been sent to the WCRR Facility for repackaging.

Although concentrated cyanide plating bath solutions were treated separately, several other liquid wastes from the plating operations were sent to the main treatment operations of the RLWTF, including liquids from the hot water rinse; lead rinse tank; gold rinse tank; copper rinse tank; nickel rinse tank; electropolishing rinse tank; anodizing line (15 percent sulfuric acid); cleaning line (sodium hydroxide); copper strike and nitric acid pickling baths; and from steam condensate. Additionally, facility personnel confirmed minor spills of concentrated cyanide plating bath were collected in the facility sump and pumped to the RLWTF.

TA-3-39 and TA-3-102, Tech Shops

Building TA-3-39 had two drainage sources to the site radioactive liquid waste treatment system. Rooms involved are storage areas, machine shops, battery charging room,

and a steam cleaning room. Debris waste from Building TA-3-102 has also been sent to the WCRR Facility for repackaging.

TA-3-65, Source Storage

Building TA-3-65 discharged radioactive liquid waste to the RLWTF. Rooms connected to the discharge included a source storage vault, work rooms, a utility room, leak test room, cart storage room, change rooms, storage rooms, and restrooms. Debris waste from these facilities, specifically sources, has also been sent to the WCRR Facility for repackaging.

TA-3-154

Building TA-3-154 had one discharge from liquid waste storage tanks to the RLWTF. This drainage source drained liquid waste from underground storage tanks outside of the CMR Building TA-3-29. The liquid waste in the storage tanks is from the CMR building, and it is pumped out "periodically".

TA-3-216, Weapons Test Support

Building TA-3-216 has one drainage source to the RLWTF consisting of discharges from sink and floor drains. Identified sources were floor washings, steam traps, hand washing (most common), Heliarc system cooling water, a hood cup and lab sinks in an equipment room, water chiller drains, condensed water, steam trap drains, vacuum pump drains, and floor washings in the restroom.

TA-3-1264

Building TA-3-1264 had three drainage sources to the RLWTF. The building was a storage/maintenance building with an exterior underground radioactive liquid waste holding tank. One drainage source was a trench drain in the truck bay of the building designed to catch any spills that might occur during radioactive liquid waste transfers to transport trucks. The second drainage source is a connection to a standpipe for pumping out the underground holding tank. The third is the discharge from the site radioactive liquid waste system to the discharge point of the holding tank.

TA-3-2009

Building TA-3-2009 had one radioactive liquid waste connection, a fume hood cup drain that discharged daily to the RLWTF from a work room.

TA-16-205, S Site

Building TA-16-205 had one drain to a waste holding tank that was ultimately disposed at the RLWTF. The drainage source waste tank in question "receives flow from the drains in the tritium processing area" that was later trucked to the RLWTF for treatment.

The liquid waste originated from recovery and process rooms, with the bulk of the flow from a sink in a process room. The remaining identified liquids were from floor washing.

TA-21 (DP Site), DP-West and DP-East

The DP-West included the site's main plutonium facility until the work was transferred to TA-55 in June 1978. Debris waste from this facility, specifically D&D waste generated after the transfer of operations to TA-55, was sent to the WCRR Facility for size reduction and repackaging. DP-West conducted nondestructive examinations involving uranium and mixed oxide irradiated reactor-fuel elements, and also housed uranium recovery operations. DP-East performed R&D work on tritiated compounds from early 1975 and generated only small quantities of waste. TA-21 waste was not processed at TA-50-1 until 1984, when it began to be pumped there by the cross-country sewer line. All of the liquid waste received from TA-21 was processed through the main treatment operations of the RLWTF. D&D waste (e.g., gloveboxes) from TA-21 was size reduced and repackaged in the WCRR Facility. Since wash down water from WCRR Facility operations was sent to the RLTWF facility for treatment, radiological, and chemical contamination from TA-21 plutonium operations may have been present/discharged.

TA-35, Ten Site

TA-35 Ten Site housed research operations including a hot cell for preparing Lanthanum-140 in kilo curie sources for plutonium research, as well as a facility for handling lithium tritide components. TA-35 also was home to the Target Fabrication Facility used for processing deuterium and tritium microsphere targets for laser operations and for processing beryllium. Radioactive liquid waste was sent to the RLWTF after 1963. Debris waste from this facility has also been sent to the WCRR Facility for repackaging.

TA-43, HRL1, Health Research

Roughly 40 percent of the facility conducted radiological work in "controlled" areas. Radiological studies produced liquid waste that was containerized and transported to the RLWTF. Debris waste from this facility has also been sent to the WCRR Facility for repackaging.

TA-48 Radiochemistry (RC) Site

Building RC-1 (TA-48-01) housed nuclear and radiochemistry operations. The facility's primary function was to obtain information on the yield and other performance parameters of nuclear test devices by the analysis of debris samples collected after underground testing at the Nevada Test Site. Debris waste from this facility has also been sent to the WCRR Facility for repackaging.

Building RC-45 (TA-48-45) was a controlled atmosphere laboratory facility for performing very precise analyses at very low concentrations in small samples. All

aqueous liquid wastes generated in this facility were sent to the RLWTF.

TA-50-37, Controlled Air Incinerator

Beginning in 1980, LANL tested a CAI for the treatment of TRU and low-level waste. The primary objective of incineration was to reduce the volume of TRU wastes, followed by chemical stabilization of waste and destruction of hydrogen gas. A high-energy aqueous scrubber was selected to provide off-gas cleanup. Construction began in 1976 and the first radioactive test was conducted in 1979 using solid TRU waste from the TA-55 Plutonium facility. Other waste processed had an average 20 nanocuries per gram Pu-239 and Am-241.

Scrub solution acidity was controlled by adding caustic solution at the process sump tank. Scrub solution specific gravity and volume was also controlled at the process sump tank. As the specific gravity increased or the tank volume exceeded set limits, the rate of flow to the RLWTF increased.

RLWTF operations personnel do not believe that liquid wastes from the CAI were ever treated at the RLWTF since the CAI never went into full production. However, it is assumed that some quantities of chemical contaminants in incinerator feed material were contained in the scrub solution that may have been discharged to the RLWTF. This facility also generated debris waste from maintenance and D&D activities, including the ash glovebox that was sent to the WCRR Facility for size reduction and repackaging.

TA-50-69, Waste Characterization, Reduction, and Repackaging Facility (formerly known as the Size Reduction Facility)

The SRF reduced bulky metallic waste to meet WIPP criteria. It was used to develop volume reduction and repackaging techniques for TRU-contaminated metallic waste items. Waste equipment was brought into an enclosure, positioned, cut by a plasma-arc cutting tool, and bagged out in pieces. In 1993, the name of the SRF was changed to the WCRR Facility to reflect the expanded TRU waste remediation and repackaging mission. Prior to the dedicated pipeline, contaminated enclosure wash down water was collected in 55-gallon drums and transferred to a holding tank, which was moved to the RLWTF for treatment when full.

TA-53, Meson Physics Facility

The Clinton P. Anderson Meson Physics Facility was used to conduct experiments in medium-energy physics and nuclear chemistry for the production of radioisotopes for nuclear medicine, and for clinical experiments in the treatment of certain types of cancer. The facility also contains a separate laboratory and several sample-handling facilities where a broad range of experiments are performed. Liquid wastes from the separate laboratory and the sample-handling facilities were fed to basement storage tanks for pump transfer to a tank truck for delivery to the RLWTF.

TA-59, Occupational Health Center

Building TA-59-1 had one liquid stream that was transferred to the RLWTF. Building TA-59-19 also had a single discharge to the system. The drainage source from Building TA-59-1 received flow from labs in the basement and first floor of the building, with sources including 91 lab sinks, 9 floor drains, an ice machine drain, and 7 dishwashers. More specifically, contributors included janitor's closets, an electron microscopy lab, and floor washings from laboratories. The drainage source for Building TA-59-19 discharged water from two lab sinks in a portable lab trailer. Debris waste from this facility has also been sent to the WCRR Facility for repackaging.

Table 1 identifies the RCRA toxicity characteristic and listed constituents identified in this waste stream.

Table 1. Toxicity Characteristic and Listed Constituents in Waste Stream LA-MHD09.001

Chemical	CAS Number	EPA HWNs
1,1,1-Trichloroethane	71-55-6	F001, F002
1,1,2-Trichloroethane	79-00-5	F002
1,1,2-Trichloro-1,2,2-trifluoroethane/1,1,2-trichlorotrifluoroethane (Freon)	76-13-1	F001, F002
1,2-Dichlorobenzene	95-50-1	F002
1,2-Dichloroethane	107-06-2	D028
1,4-Dichlorobenzene	106-46-7	D027
1,1-Dichloroethylene	75-35-4	D029
2,4-Dinitrotoluene	121-14-2	D030
2-Ethoxyethanol	110-80-5	F005
2-Nitropropane	79-46-9	F005
Arsenic	7440-38-2	D004
Barium	7440-39-3	D005
Benzene	71-43-2	F005
Cadmium	7440-43-9	D006
Carbon disulfide	75-15-0	F005
Carbon tetrachloride	56-23-5	F001
Chlorobenzene	108-90-7	F002
Chloroform	67-66-3	D022
Chromium	7440-47-3	D007
Cresols (mixed isomers)	1319-77-3	F004
Cyanides	57-12-5	F006, F007, F009
Isobutyl alcohol (isobutanol)	78-83-1	F005
Lead	7439-92-1	D008
Mercury	7439-97-6	D009
Methylene chloride	75-09-2	F001, F002
Methyl ethyl ketone	78-93-3	F005
Nitrobenzene	98-95-3	F004
Pentachlorophenol	87-86-5	D037
Pyridine	110-86-1	F005
Selenium	7782-49-2	D010
Silver	7440-22-4	D011
Tetrachloroethylene	127-18-4	F001, F002
Toluene	108-88-3	F005
Trichloroethylene	79-01-6	F001, F002
Trichlorofluoromethane	75-69-4	F001, F002
Vinyl chloride	75-01-4	D043

RCRA Determinations - Hazardous Waste Determinations

Historical Waste Management

Waste stream LA-MHD09.001 has historically been managed in accordance with the generator site requirements and in compliance with the requirements of the New Mexico Environmental Department. Based on historical waste management, the containers in this waste stream were either managed as non-hazardous or were assigned EPA HWNs for reactivity (D003), arsenic (D004), cadmium (D006), chromium (D007), lead (D008), mercury (D009), selenium (D010), or F-listed solvents (F001). A review of available AK documentation has determined that this waste is hazardous for the above constituents, and it may be contaminated with any of the chemicals or metals described for waste streams LA-MIN03-NC.001 and LA-MHD03.001. However, D003 for reactivity does not apply to this waste stream and only the more specific F-listed HWNs were applied (see below Reactivity and Toxicity Characteristic subsections). Therefore, the above table identifies the expected hazardous chemical contaminants and associated HWNs applicable to the waste stream.

Ignitability, Corrosivity, Reactivity

Waste generated in this waste stream does not qualify for any of the exclusions outlined in Title 40 Code of Federal Regulations (CFR) 260 or 261. Real-time Radiography (RTR) or VE is 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 of 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 ignitable chemicals (e.g., methyl alcohol, n-butyl alcohol) and oxidizers (e.g., aluminum nitrate, ferric nitrate) were used or were present in the contributing facilities, these reagents were used in small quantities as needed and should only be present as trace (non-liquid) contaminants in the debris waste. Liquids generated during repackaging activities were either solidified in absorbent (e.g., Portland cement, vermiculite, Waste Lock 770) or discharged to the RLWTF for treatment. To ensure the waste does not exhibit the characteristic of ignitability, liquid in excess of TSDF-WAC limits will be removed or immobilized, and compressed gases (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 D004, D005, D056, D078, D103, P001, P015, and P016).

Corrosivity

This waste does not exhibit the characteristic of corrosivity as defined in 40 CFR 261.22. LANL waste management practices prohibit liquids in containers of solid waste materials. Although corrosive chemicals (e.g., nitric acid, sodium hydroxide, sulfuric acid) were used or were present in the contributing facilities, these reagents were used in small quantities as needed and should only be present as trace (non-liquid) contaminants in the debris waste. Liquids generated during repackaging activities were either solidified in absorbent (e.g., Portland cement, vermiculite, Waste Lock 770) or discharged to the RLWTF for treatment. To ensure the waste does not exhibit the characteristic of corrosivity, liquid 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 D004, D005, D056, D073, D078, D103, P001, P015, and P016).

Reactivity

This waste does not exhibit the characteristic of reactivity as defined in 40 CFR 261.23. Although reactive materials (e.g., magnesium oxide, sodium) were used or were present in the contributing facilities, these reagents were used in small quantities as needed and should only be present as trace contaminants in the debris waste. 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. LANL waste management policies did not allow the disposal of potentially reactive material (e.g., sodium) or the material was treated prior to disposal. To ensure the waste does not exhibit the characteristic of reactivity, liquid in excess of TSDF-WAC limits will be removed or immobilized, and compressed gases (e.g., aerosol cans) will be removed or vented prior to WIPP disposal. Therefore, this waste stream does not exhibit the characteristic of reactivity (D003) (References D004, D056, D078, D103, DR010, and P015).

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 or limited quantitative data available to demonstrate that the concentration of a constituent is below regulatory threshold levels, 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. Arsenic (D004), chromium (D007), lead (D008), mercury (D009), and selenium (D010) were used as a reagent, identified as a contaminant in CMR and TA-55 operations, detected in wastewater samples, and identified as an ingredient in chemicals. Barium (D005) was detected in wastewater samples and identified as a contaminant in CMR and TA-55 operations. Cadmium (D006) was used as a reagent, identified as a contaminant in CMR and TA-55

operations, and detected in wastewater samples. Silver (D011) was used as a reagent, component of plating operations, identified as a contaminant in CMR and TA-55 operations, detected in wastewater samples, and identified as ingredients in chemicals. Therefore, EPA HWNs D004, D005, D006, D007, D008, D009, D010, and D011 are assigned to waste stream LA-MHD09.001.

The AK identified the potential presence of additional organic toxicity characteristic compounds including benzene (D018), carbon tetrachloride (D019), chlorobenzene (D021), chloroform (D022), cresols (D026), 1,4-dichlorobenzene (D027), 1,2-dichloroethane (D028), 1,1-dichloroethylene (D029), 2,4-dinitrotoluene (D030), methyl ethyl ketone (D035), nitrobenzene (D036), pentachlorophenol (D037), pyridine (D038), tetrachloroethylene (D039), and trichloroethylene (D040), and vinyl chloride (D043). These materials were used during analytical analysis and preparation, sample extraction, machining, cleaning equipment, laboratory reagents and standards, and were detected in RLWTF influent and effluent samples. Benzene, carbon tetrachloride, chlorobenzene, cresols, methyl ethyl ketone, nitrobenzene, pyridine, tetrachloroethylene, and trichloroethylene are identified as F-listed solvents. Since the more specific F-listed EPA HWNs have been assigned for these compounds, the corresponding toxicity characteristic HWNs (i.e., D018, D019, D021, D026, D035, D036, D038, D039, D040) are not applied. Therefore, only HWNs D022, D027, D028, D029, D030, D037, and D043 are assigned to waste stream LA-MHD09.001 (References C013, C018, C089, D001, D002, D003, D004, D007, D029, D046, D076, D077, D078, D083, D100, D101, DR001, and DR010).

Listed Waste

F-Listed Waste

Waste stream LA-MHD09.001 was mixed with or derived from F-listed hazardous wastes from non-specific sources as listed in 40 CFR 261.31. F001, F002, F004, and F005 listed solvents were used or present in the facility and potentially contaminated the waste. F-listed solvents were used during analytical analysis and preparation, sample extraction, machining, cleaning equipment, and were detected in RLWTF influent and effluent samples. In addition, liquid wastes from cyanide plating operations (F007 and F009) conducted in the TA-3-66 Sigma Building have been treated at TA-50, and EPA HWN F006 also applies to the RLWTF waste derived from the treatment of the liquids from plating operations. Therefore, EPA HWNs F001, F002, F004, F005, F006, F007, and F009 are assigned to this waste stream (References C013, C018, D003, D004, D007, D028, D034, D046, D068, D077, D078, D083, D100, D101, DR001, and DR010).

F003 listed solvents were also used or present in the facility and potentially contaminated the waste. F003 constituents including acetone, cyclohexanone, ethyl benzene, ethyl ether, methyl alcohol, methyl isobutyl ketone, n-butyl alcohol, and xylene are listed solely because these solvents are ignitable in the liquid form. The waste stream will not exhibit the characteristic of ignitability because it is not in a liquid form; therefore, F003 is not assigned (Reference DR010).

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

(F001)
Carbon tetrachloride, methylene chloride, 1,1,1-trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane (Freon TF), tetrachloroethylene, trichloroethylene, trichlorofluoromethane

(F002)
Chlorobenzene, 1,2-dichlorobenzene, methylene chloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane (Freon TF), tetrachloroethylene, trichloroethylene, trichlorofluoromethane

(F004)
Cresols, nitrobenzene

(F005)
Benzene, carbon disulfide, 2-ethoxyethanol, isobutyl alcohol (isobutanol), methyl ethyl ketone, 2-nitropropane, pyridine, toluene

(F006, F007, F009)
Cyanides

U, K, and P-Listed Chemicals

Waste stream LA-MHD09.001 does not contain and is not mixed with a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof as defined in 40 CFR 261.33. P- and U-listed reagents were used or present in the contributing facilities; however, no pure product or unused chemicals would have been disposed of in this waste stream. No listed chemicals were identified in the container-specific documentation and no record of a significant spill of listed chemicals was located (e.g., incident report, waste profile form).

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). The use of beryllium powder as a constituent or contaminant was not identified in this waste stream. Any beryllium present would be a result of residual contamination in waste water solutions or debris processed at TA-50. Therefore, the waste stream does not meet the definition of P015 waste.

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 LA-MHD09.001.

Waste stream LA-MHD09.001 does not include any of the manufacturing process wastes from the specific industries or sources listed in 40 CFR 261.32.

Therefore, this waste stream is not a U-, K-, or P-listed waste (References C018, C081, D001, D002, D003, D004, D007, D046, D076, D077, D078, D100, D101, and DR010).

Headspace Gas/Volatile Organic Compound Information

Headspace gas analysis was completed on 10 randomly selected containers in Lot 1 of this waste stream. No new EPA HWNs were assigned as a consequence of headspace gas sampling and analysis. No UCL_{90} values exceeded the respective target analyte Program Required Quantitation Limits. No tentatively identified compounds were identified. The specifics of this information are included in the attached Characterization Information Summary report.

Other Waste Streams Generated From the Same Buildings and Processes

Currently two other waste streams from the TA-50 Facilities have been identified and characterized. They are assigned different HWNs and the justification is provided below:

Waste stream LA-MIN03-NC.001 consists of homogeneous dewatered sludge generated in the TA-50-01 RLWTF main treatment process at LANL. This waste stream includes the same hazardous constituents assigned to waste stream LA-MHD09.001 except for 1,4-dichlorobenzene (D027), 1,1-dichloroethylene (D029), 2,4-dinitrotoluene (D030), and vinyl chloride (D043). These constituents are specific to debris waste from TA-03-29 (reference waste stream LA-MHD03.001) which is not present in waste stream LA-MIN03-NC.001.

Waste stream LA-CIN02.001 consists of homogeneous cemented inorganics generated in the TA-50-01 RLWTF pretreatment process at LANL. This waste stream includes the same hazardous constituents assigned to waste stream LA-MHD09.001 except for 1,4-dichlorobenzene (D027), 1,2-dichloroethane (D028), 1,1-dichloroethylene (D029), 2,4-dinitrotoluene (D030), vinyl chloride (D043), nitrobenzene (F004), and cyanides (F006, F007, and F009). Since waste stream LA-CIN02.001 is contaminated with TA-55 waste only, it would not be contaminated with these constituents.

Conclusion

The EPA HWNs that apply to the waste stream are D004, D005, D006, D007, D008, D009, D010, D011, D022, D027, D028, D029, D030, D037, D043, F001, F002, F004, F005, F006, F007, and F009.

Polychlorinated Biphenyls (PCBs)

No sources of PCBs have been specifically identified in AK documentation for this waste stream. However, characterization activities of other LANL debris waste streams have identified the presence of light ballasts. Ballasts in fluorescent light fixtures could contain PCBs. Therefore, containers with PCB waste, identified during RTR or VE, will

be managed as a Toxic Substances Control Act waste under 40 CFR 761 (References D017, D068, and M227).

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and characterization activities. RTR or VE is 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 Hazardous Waste Facility Permit, unless specifically approved through a Class 3 permit modification.

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

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

Justification for the Selection of Radiography or VE

Containers in this waste stream were characterized using RTR. RTR was selected as a characterization method for this Lot because the waste was already packaged and RTR meets all the Data Quality Objectives for NDE for waste stream LA-MHD09.001.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The Waste Material Parameters (WMPs) for waste stream LA-MHD09.001 were estimated by extracting generator comments describing the container contents, when available, from the CONCERT database. When generator comments were not available, the Radioactive Solid Waste Disposal, Item Description Code, or TRUCON code for each container was obtained from the CONCERT database as of January 4, 2005. The WMPs for waste stream LA-MHD09.001 were estimated by reviewing container inventory records for 53 containers generated from June 1980 to October

2002, which had net weights listed in the CONCERT database. The net weight of each container was categorized into one or more of the following WMPs.

The WMPs, average weight percent and weight percent range are presented in Table 2.

Table 2. Waste Stream LA-MHD09.001 Waste Material Parameter Estimates

Waste Material Parameter	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	49.75%	0 - 57.77%
Aluminum-based Metal/Alloys	18.11%	0 - 33.33%
Other Metals	18.38%	0 - 100.00%
Other Inorganic Materials	2.02%	0 - 100.00%
Cellulosics	3.72%	0 - 100.00%
Rubber	3.43%	0 - 33.33%
Plastics	3.76%	0 - 100.00%
Organic Matrix	0.00%	0 - 0.00%
Inorganic Matrix	0.83%	0 - 92.93%
Soils/Gravel	0.00%	0 - 0.00%

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 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

The two most prevalent radionuclides in this waste stream, by weight, based on the un-decayed data reported in AK are Pu-239 and U-235. The isotopes expected to be present in this waste stream are listed in Table 3.

Table 3. Summary of Waste Stream LA-MHD09.001 Radionuclides

WIPP Tracked Radionuclides	Additional Reported Radionuclides
Am-241	Am-243
Pu-238	Co-60
Pu-239	Cs-134
Pu-240	Eu-152
Pu-242	Eu-154
U-233 (not reported)	Eu-155
U-234	Na-22
U-238 (not reported)	Np-237
Cs-137	Np-239
Sr-90 (not reported)	Pu-241
	Ra-226
	Sb-125
	Th-228
	U-235

Payload management will not be utilized for this waste stream.

Attachment 1

AK Source Documents, Supplemental Documentation

Source Document Number	AK #	Title	Document Number	Date
C013	NA	Memo to B. Garcia re: Re-characterization of Wastewater Treatment Sludge in Storage at Technical Area (TA) 54 - Request for Removal from Federal Facility Compliance Order (FFCO)	NA	1/12/96
C014	S7	Interviews of Radioactive Liquid Waste Knowledgeable Personnel	TWCP-614	September 1999
C017	S7	Outstanding Questions on Vacuum Filter Sludge Waste	NA	11/13/03
C018	NA	RCRA Evaluation	April 14, 2004	NA
C026	S7	Email to J. Musgrave re: P/S Codes for Special Processing	NA	January 20, 2000
C029	S7	Interview with J. Barfield	TWCP-3546	February 25, 2000
C035	S7	Interview with J. Foxx, SME	TWCP-3541	March 15, 2000
C037	S7	Interview with M. West of NMT-2 and G. Bird of NMT-2	TWCP-3542	NA
C054	S7	Comments from J. Foxx on a draft AK Supplemental Information Report for Pu-238 Operations (September 30, 1999)	TWCP-3545	November 1999
C056	S7	Interview with J. Foxx RE: Pu-238 and Effluent to TA-50	TWCP-3545	August 31, 1999
C061	S7	Interview with J. Foxx	TWCP-3547	September 23, 1999
C064	S7	Interview with T. Hayes of TA-55 Nitrate Operations re: Draft AK Summary for TA-55 Nitrate Operations, 12-19-99 (attached)	NA	January 4, 2000
C081	NA	AK Beryllium Assessment	NA	March 28, 2005
C089	NA	Waste Stream LA-MIN03-NC.001 and LA-MHD03.001 EPA HWN Assignment Comparison	NA	5/23/07
D001	NA	Process Acceptable Knowledge Report for Special Processing at TA-55	TWCP-AK-2.1-007	5/18/02
D002	NA	Process Acceptable Knowledge Report for Pyrochemical Processes at TA-55	TWCP-AK-2.1-006	5/18/01
D003	NA	Process Acceptable Knowledge Report for Miscellaneous Operations at TA-55	TWCP-AK-2.1-004	6/18/01
D004	NA	AK Summary Report for Waste Stream TA-50-19, Vacuum Filter Cake	LA-UR-02-6472	10/4/02

Source Document Number	AK	Title	Number	Date
D005	S3	Los Alamos National Laboratory TA-50/21/63 Waste Management Operations Safety Analysis Report, TA-50 Radioactive Liquid Waste Treatment Facility	LA-UR-94-1141, WASTEMGMT-REPORT-002	March 1994, October 1995
D007	NA	Process Acceptable Knowledge Report for Chloride Operations at TA-55	TWCP-AK-2.1-002	5/17/01
D017	NA	Ready, Set, ...Quit! A Review of the Controlled Air Incinerator	LA-UR-96-1102	May 1996
D028	NA	Radioactive Liquid Waste Collection System Study	RLWPO/CST-13, Rev. 0	Early 1995
D029	NA	Work Release #24, Study of Alternatives for Radioactive Wastewater Treatment Sludges	NA	8/93
D034	NA	Radioactive Liquid Waste Survey Sigma Building (TA-3 SM-66)	NA	8/23/93
D046	NA	TA-55 Plutonium Facility Acceptable Knowledge Report, Nitrate Operations	TWCP-AK-2.1-005	May 17, 2001
D056	NA	Los Alamos Transuranic Waste Size Reduction Facility	LA-UR-87-1916	1987
D068	NA	RCRA Part B Permit Application, Volume I	NA	November 1988
D071	S1	Los Alamos National Laboratory RLWTF Conceptual Design Best Demonstrated Available Technology Evaluation, Technical Memorandum 1 Segregation and Pretreatment	NA	February 15, 1995
D072	S1	Modification to Design Criteria for Upgrading of Industrial Liquid Waste Treatment Plant	NA	Circa 1981
D073	NA	Los Alamos TRU Waste Certification Plan for Newly Generated TRU Waste	WCP-HES7-CPL-01	November 1984
D074	S4	Final TRU Waste Inventory Work-Off Plan	LA-UR862932	August 1986
D076	NA	Process Acceptable Knowledge Report for Plutonium-238 Operations at TA-55	TWCP-AK-2.1-009	8/7/01
D077	NA	Process Acceptable Knowledge Report for Metal Operation Processes at TA-55	TWCP-AK-2.1-003	5/17/01
D078	NA	Acceptable Knowledge Information Summary for LANL Transuranic Waste Streams	AK-00-019	9/22/03
D083	NA	Acceptable Knowledge Summary for the TA-55 Chloride Operations	TWCP-3567, N-40	NA
D100	NA	Acceptable Knowledge Report for Newly Generated Waste from Metal/Pyrochemical Operations at TA-55	TWCP-AK-2.1-017 (LA-UR-Q2-6906)(TWCP-15421)	October 22, 2002
D101	NA	Acceptable Knowledge Report for Newly Generated Waste from Miscellaneous	TWCP-AK-2.1-014 (LA-UR-02-	November 11, 2002

Source Document Number	AK #	Title	Document Number	Date
		Operations at TA-55	6904)(TWCP-15419)	
D103	NA	Waste Management Site Plan Los Alamos National Laboratory December 1984	LA-UR-85-336	December 2004
D108	S2	General Waste Management Requirements	LIR 404-00-02.3	11/01/1998
D113	S2, S4	LANL Hazardous Waste Permit	TWCP-14341	11/30/1995
D115	S2, S4	Waste Profile Form Guidance	LIG 404-00-03.1	09/18/1997
D116	S2	Review and Completion of the TWSR	AP-SWO-006	July 2003
D117	S4	Waste Generator Guidance for Completing the TRU Waste Storage Record (TWSR)	LIG404-00-01.2	11/26/1997
DR001	NA	Resolution of RCRA Discrepancies for Waste Stream LA-MIN03-NC.001	NA	4/15/04
DR010	NA	Acceptable Knowledge Source Document Discrepancy Resolution - EPA Hazardous Waste Number Discrepancy Resolution for Waste Stream LA-MHD09.001	NA	5/26/2009
M018	S6	Spreadsheet "Area G Rad Values from Opp"	NA	10/6/2003
M041	S2	Procedure Review Sheet for 473-REC-R00, "Procedure for Eluting Plutonium from Ion Exchange Columns"	TWCP-3566	September 1999
M087	S2	Procedure 490-REC, "Catalyzed Electrochemical Plutonium Oxide Dissolver (CEPOD)"	TWCP-3566	Revs 0-1
M089	S2	Procedure 423-REC, "Ash Leaching"	TWCP-3566	NA
M090	S2	Procedure 431-REC, "Leaching of Contaminated Metals in Nitric Acid"	TWCP-3566	
M122	S2	Procedure Review Sheet - Small Scale Bomb Reduction	291-MPP (SP-23)	2/23/87, 9/14/90
M178	S2	Procedure HS-NMT9-PP-42, "Particle Size Analysis of Oxide Powders Procedure"	TWCP-3545	Revs 0-1
M190	S2	Procedure 429-REC, "Oxidation of Pu Metal and Alloys Prior to Dissolution," Passivation Furnaces	TWCP-3548	Revs 0-5
M202	S2	Procedure 470-REC, "Distillation of Am IX Column Effluents to Reduce Acidity and Volume"	TWCP-3566	Rev 1
M219	S6	CONCERT Database (MS Access Format)	TWCP-24370	2/2/05
M220	S6	Acceptable Knowledge Isotopic Ratios (AKIR) Database (MS Access Format)	TWCP-AK-00-20	9/22/03
M227	S4	RSWD and TWSR Records for Waste Stream LA-MHD09.001	NA	NA

P001	NA	Administrative Requirements 7-1: Radioactive Solid Waste Management	Section 7, HSE Manual	October 1979
P007	S2	Radioactive Liquid Waste	ES&H Manual, AR 10-1	May 29, 1992
P008	S2	Transuranic (TRU) Solid Waste	ES&H Manual, AR 10-5	August 15, 1993
P013	S2	Unknown	WCP-HSE7-AT-02	January 17, 1986
P014	S2	Prohibited Item Dispositioning in Dome 231 PermaCon	TRU-DOP-0334, EP-DOP-2108	9/11/06, 10/4/06, 11/28/06, 9/17/2009
P015	S2	Processing Waste in the Waste Characterization Glovebox	EP-WCRR-DOP-0233	07/16/2007
P016	S2	Standard Waste Visual Examination and Prohibited Item Dispositioning	TRU-DOP-1709	9/28/2006

Alphanumeric Designations

C Correspondence
D Documents
DR Discrepancy Resolution
M Miscellaneous
P Procedures and 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