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

DEC 15

DEC

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

Subject: Review of the Central Characterization Project-Idaho National Laboratory (INL) Waste Stream Profile Form Number, ID-RTC-S3000, Stored Remote Handled Transuranic Waste from the Reactor Technology Complex at INL

Dear Mr. Bearzi:

The Carlsbad Field Office has approved the Waste Stream Profile Form, ID-RTC-S3000, stored Remote Handled Transuranic Waste from the Reactor Technology Complex at INL.

Enclosed is a copy of the form as required by Section B-5a of the WIPP Hazardous Waste Facility Permit No. NM4890139088-TSDF.

If you have questions on this matter, please contact J. R. Stroble at (575) 234-7313.

Sincerely,

Edward Ziemianski
Acting Manager

Enclosure

cc: w/enclosure
S. Zappe, NMED * ED

cc: w/o enclosure
J. Kieling, NMED ED
N. Castaneda, CBFO ED
C. Fesmire, CBFO ED
G. Basabilvazo, CBFO ED
S. McCauslin, CBFO ED
J. R. Stroble, CBFO ED
K. Watson, CBFO ED
W. Ledford, CTAC ED
P. Gilbert, LANL ED
G. Lyshik, LANL ED
C. Walker, TechLaw ED
CBFO, M&RC
*ED denotes electronic distribution

CBFO:NTP:CF:GS:10-2060:UFC 5900.00

101216

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: ID-RTC-S3000							
(2) Generator site name: Idaho National Laboratory					(4)Technical contact: Irene Quintana		
(3) Generator site EPA ID: ID4890008952					(6) Technical contact phone number: (575) 499-4579		
(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, Rev. 18, June 30, 2010 CCP-PO-002, CCP Transuranic Waste Certification Plan, Rev. 24, June 30, 2010 CCP-PO-501, CCP/INL RH TRU Waste Interface Document, Rev. 4, April 30, 2010							
(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[1]							
(10) WIPP ID: IN-TRA-150					(11) Summary Category Group: S3000		
(12) Waste Matrix Code Group: Solidified Inorganics					(13) Waste Stream Name: Stored Remote Handled Transuranic Waste from the Reactor Technology Complex at INL		
(14) Description from the TWBIR: This waste stream consists of 2 drums of waste generated from removal of sludge from wastewater storage tanks utilized in the storage and handling of Reactor Technology Complex radioactive waste water.							
(15) Defense TRU Waste:	YES	X	NO				
(16) Check One:	CH		RH	X			
(17) Number of SWBs 0			(18) Number of Drums 0			(19) Number of Canisters 2^3	
(20) Batch Data report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers to Batch Data Report Numbers							
(21) List applicable EPA Hazardous Waste Numbers:[2] D004, D005, D006, D007, D008, D009,D010, D011, D019, D022, F002, and F005							
(22) Applicable TRUCON Content Numbers: ID 327							
(23)**Acceptable Knowledge Information**[1]							
[For the following, enter the supporting documentation used (i.e., references and dates)]							
Required Program Information							
(23A) Map of site: CCP-AK-INL-520, Rev. 2, November 12, 2010, Attachments 1 & 2							
(23B) Facility mission description: CCP-AK-INL-520, Rev. 2, November 12, 2010, Sections 2.0 & 4.1							
(23C) Description of operations that generate waste: CCP-AK-INL-520, Rev. 2, November 12, 2010, Section 4.2 & 5.3							
(23D) Waste identification/categorization schemes: CCP-AK-INL-520, Rev. 2, November 12, 2010, Section 4.2 & 5.4							
(23E) Types and quantities of waste generated: CCP-AK-INL-520, Rev. 2, November 12, 2010, Sections 4.2 & 5.4							
(23F) Correlation of waste streams generated from the same building and process, as applicable: NA							
(24) Waste certification procedures: CCP-TP-530, CCP RH TRU Waste Certification and WWIS/WDS Data Entry, Revision 9, December 11, 2009							
(25)Required Waste Stream Information							
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-INL-520, Rev. 2, November 12, 2010, Section 5.1							

(25B) Waste stream volume and time period of generation: CCP-AK-INL-520, Rev. 2, November 12, 2010, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-INL-520, Rev. 2, November 12, 2010, Sections 4.2 and 5.3			
(25D) Waste Process flow diagrams: See CCP-AK-INL-520, Rev. 2, November 12, 2010, Attachments 3, 4, & 5			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-INL-520, Rev. 2, November 12, 2010, 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: ID-RTC-S3000			
(26) Which Defense Activity generated the waste: (check one)[4]			
	Weapons activities including defense inertial confinement fusion	X	Naval Reactors development
	Verification and control technology		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 S2 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27C) Safety Analysis Reports: See S3 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27D) Waste packaging logs: See S4 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27E) Test plans/research project reports: See S5 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27F) Site databases: See S6 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27G) Information from site personnel: See S7 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27H) Standard industry documents: See S8 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27I) Previous analytical data: See S9 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27J) Material safety data sheets: See S10 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27K) Sampling and analysis data from comparable/surrogate Waste: See S12 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(27L) Laboratory notebooks: See S11 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: NA		
(29)	Visual Examination: CCP Remote-Handled Waste Visual Examination CCP-TP-500, Revs. 8, 7/24/08 and 9, 6/30/10		

(30)Comments:

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

Reviewed by AK Expert: YES [X] **Date:** 11/12/10

Reviewed by STR (if necessary): YES [X] NA [ ] **Date:** 11/12/10

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) Irene Quintana	(33) 12/2/10
Signature of Site Project Manager	Printed Name	Date

NOTE:
(1) Use back of sheet or continuation sheets, if required.
(2) If radiography, visual examination, headspace gas analysis, and/or homogeneous solids/soils/gravel sample analysis were used to determine EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.
(3) This waste stream consists of two 55-gallon stored drums that will be loaded into one RH canister. Each of these drums will be repackaged into two 30-gallon drums each packaged into a 55-gallon drum (for a total of our 55-gallon drums).
(4) The defense activities that generated this waste also include materials security and safeguards, and defense research and development.

CHARACTERIZATION INFORMATION SUMMARY

WSPF # ID-RTC-S3000

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream # ID-RTC-S3000 Lot #: 1

AK Expert Review Scott Smith Date 11/12/10 RTK SMS 11/12/10

SPM Review: Irene Quintana Date 11/12/2010

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:

Visual Examination

CCP-TP-500	Rev. 9	06/30/10	CCP Remote-Handeld Waste Visual Examination
CCP-TP-500	Rev. 8	07/24/08	CCP Remote-Handeld Waste Visual Examination

Solids Sampling:

CCP-TP-512	Rev. 3	05/04/10	CCP Remote-Handled Waste Sampling
CCP-TP-512	Rev. 2	04/16/09	CCP Remote-Handled Waste Sampling

Solids Analysis:

CCP-TP-181	Rev. 0	05/02/07	CCP Determination of Mercury by CVAA for TRU Waste Characterization
CCP-TP-182	Rev. 1	01/26/09	CCP Determination of Metals by ICP-AES for TRU Waste Characterization
CCP-TP-183	Rev. 0	05/02/07	CCP Microwave Assisted Digestion of Homogeneous Solids and Soil/Gravel
CCP-TP-184	Rev. 0	05/02/07	CCP Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-185	Rev. 1	11/18/08	CCP Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry
CCP-TP-186	Rev. 1	08/22/07	CCP Determination of Nonhalogenated Volatile Organics by Gas Chromatography
CCP-TP-187	Rev. 1	11/18/08	CCP Sample Preparation for Semivolatile Organic Compounds

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 18	08/09/10	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 17	09/24/07	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 22	06/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 18	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 18	11/16/06	CCP Acceptable Knowledge Documentation
CCP-TP-530	Rev. 9	12/11/09	CCP RH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 18	06/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 24	06/30/10	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/10	CCP Transuranic Waste Certification Plan

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # ID-RTC-S3000 Lot # 1

Container ID Number	NDA BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR			
							Sample	Analysis		
IDIRTRA8821A	N/A	N/A	RHINLVE100001	N/A	N/A	N/A	NA	N/A	N/A	N/A
IDIRTRA8821B	NA	N/A	RHINLVE100001	N/A	N/A	N/A	NA	N/A	N/A	N/A
IDIRTRA8822A**	NA	N/A	RHINLVE100001	IDRH0902	ALD09007N ALD09007S ALD09007V ALD09007M	N/A	NA	N/A	N/A	N/A
IDIRTRA8822B**	NA	N/A	RHINLVE100001	IDRH0902	ALD09007N ALD09007S ALD09007V ALD09007M	N/A	NA	N/A	N/A	N/A
IDIRTRA8811*	NA	N/A	N/A	IDRH0902	ALD09007N ALD09007S ALD09007V ALD09007M	N/A	NA	N/A	N/A	N/A
IDIRTRA8831*	NA	N/A	N/A	IDRH0902	ALD09007N ALD09007S ALD09007V ALD09007M	N/A	NA	N/A	N/A	N/A
IDIRTRA8832*	NA	N/A	N/A	IDRH0902	ALD09007N ALD09007S ALD09007V ALD09007M	N/A	NA	N/A	N/A	N/A
IDIRTRA8843*	NA	N/A	N/A	IDRH0902	ALD09007N ALD09007S ALD09007V ALD09007M	N/A	NA	N/A	N/A	N/A

* The original waste stream consist of 10 containers of which five were sampled and analyzed for solids. Host site had notified CCP of an alternate path for disposal however two containers remained to be RH TRU. This shipping lot consists of the two remaining containers which were repackaged into four containers. Containers marked with asterisk are included for the solids results only but are not eligible for disposal at WIPP.

**At the time of solids sampling conainer IDIRTRA8822 contents had not been split to two containers. The solids analysis results are reported for the container prior to splitting into two containers.

Irene Quintana
Printed Name

12/2/2010
Date

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: ID-RTC-S3000 **Solids Summary Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL [1]	# Samples	Maximum (mg/kg)	Mean (mg/kg)	SD (ppmv)	UCL_{90} (mg/kg)	PRQL (mg/kg)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA HWN
Benzene	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
Bromoform	No	0	5	0.0800	0.0730	0.0057	0.0769	10	N/A		
Carbon disulfide	No	0	5	0.2350	0.2170	0.0164	0.2283	10	N/A		
Carbon tetrachloride	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
Chlorobenzene	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
Chloroform	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
1,1-Dichloroethylene	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
1,2-Dichloroethane	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
Ethyl benzene	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
Methylene chloride	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
m,p-Xylene[a]	Log	2	5	0.0953	-0.9661	0.7304	-0.4653	10	2.30		
o-Xylene	Log	2	5	0.4700	-1.2535	1.0250	-0.5507	10	2.30		
1,1,2,2-Tetrachloroethane	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
Tetrachloroethylene	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
Toluene	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
trans 1,2-Dichloroethylene	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
1,1,1-Trichloroethane	Log	1	5	-1.5371	-1.7300	0.5030	-1.3900	10	2.30		
Trichloroethylene	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
1,1,2-Trichloroethane	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
Trichlorofluoromethane	No	0	5	0.1550	0.1440	0.0108	0.1514	10	N/A		
Vinyl chloride	No	0	5	0.1550	0.1440	0.0108	0.1514	4	N/A		
Acetone	No	0	3 [2]	8.0000	7.1667	1.4434	8.7380	100	N/A		
Butanol	No	0	3 [2]	8.0000	7.1670	1.4430	8.7380	100	N/A		
Methanol	No	0	3 [2]	8.0000	7.1667	1.4434	8.7380	100	N/A		
Methyl ethyl ketone	No	0	3 [2]	8.0000	7.1667	1.4434	8.7380	100	N/A		

CCP Solids Analysis VOC UCL_{90} Evaluation Form

WSPF #: ID-RTC-S3000 **Solids Summary Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL [1]	# Samples	Maximum (mg/kg)	Mean (mg/kg)	SD (ppmv)	UCL_{90} (mg/kg)	PRQL (mg/kg)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA HWN
Ethyl ether	No	0	3 [2]	16.5000	14.3333	3.3292	17.9577	100	N/A		
Isobutanol	No	0	3 [2]	8.0000	7.1667	1.4434	8.7380	100	N/A		
Pyridine	No	0	3 [2]	16.5000	14.3333	3.3292	17.9577	100	N/A		
Ortho-Dichlorobenzene[b,c]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Formaldehyde[c]	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		

[a] 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."

[b] Can also be analyzed as an SVOC. If analyzed as an SVOC, the QAO's of CCP-PO-001, Table B3-6 apply.

[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.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) As a result of dilution requirements compounds for two samples were reported as non-detected with an MDL value in excess of the PRQL. In accordance with the Waste Analysis Plan, Section B4-3d, such observations with elevated MDL values due to dilution were not used in calculating the mean concentration. Consequently, statistics was calculated using three of the five sample results.

Signature of Site Project Manager

Irene Quintana
Printed Name

12/2/2010
Date

CCP Solids Analysis SVOC UCL_{90} Evaluation Form

WSPF #: ID-RTC-S3000 **Solids Summary Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL [1]	# Samples	Maximum (mg/kg)	Mean (mg/kg)	SD (mg/kg)	UCL90 (mg/kg)	PRQL (mg/kg)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA HWN
1,2-Dichlorobenzene [a]	Log	0	5	2.1401	0.9692	0.6609	1.4223	40	3.69		
1,4-Dichlorobenzene [a]	Log	0	5	2.1401	0.9692	0.6609	1.4223	40	3.69		
2,4-Dinitrophenol	Log	0	5	1.4469	0.2739	0.6660	0.7306	40	3.69		
2,4-Dinitrotoluene[2]	Log	0	1	0.2624	0.2624	0.0000	0.2624	2.6	0.96		
Hexachlorobenzene[2]	Log	0	1	0.2624	0.2624	0.0000	0.2624	2.6	0.96		
Hexachloroethane	Log	0	5	2.1401	0.9692	0.6609	1.4223	40	3.69		
2-Methylphenol	Log	0	5	2.1401	0.9692	0.6609	1.4223	40	3.69		
3&4-Methylphenol	Log	0	5	2.1401	0.9692	0.6609	1.4223	40	3.69		
Nitrobenzene	Log	0	5	2.1401	0.9692	0.6609	1.4223	40	3.69		
Pentachlorophenol	Log	0	5	2.1401	0.9692	0.6609	1.4223	40	3.69		

[a] Can also be analyzed as a VOC. If analyzed as a VOC, the QAO's of CCP-PO-001, Table B3-4 apply.

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) As a result of dilution requirements compounds were reported as non-detected with an MDL value in excess of the PRQL. In accordance with the Waste Analysis Plan, Section B4-3d, such observations with elevated MDL values due to dilution were not used in calculating the mean concentration. Consequently, statistics could not be calculated on the subject analytes.

Signature of Site Project Manager

Irene Quintana
Printed Name

12/2/2010
Date

CCP Solids Analysis Metals UCL_{90} Evaluation Form

WSPF #: ID-RTC-S3000 **Solids Summary Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL [1]	# Samples	Maximum (mg/kg)	Mean (mg/kg)	SD (mg/kg)	UCL90 (mg/kg)	PRQL (mg/kg)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA HWN
Antimony	Log	5	5	5.3940	3.5080	0.5250	3.8690	100	4.61		
Arsenic	No	5	5	18.0000	13.7400	3.3820	16.0590	100	N/A		
Barium	Log	5	5	7.6960	7.2650	0.3130	7.4800	2000	7.60		
Beryllium	Log	5	5	5.1360	4.5150	0.3540	4.7590	100	4.61	Yes	(4)
Cadmium[2]	Log	5	5	4.6050	4.0510	0.4200	4.3380	20	3.00	Yes	D006
Chromium[2]	No	5	5	2800.0000	1980.0000	645.7550	2422.7760	100	N/A	Yes	D007
Lead[2]	Log	5	5	8.6480	7.8940	0.4340	8.1920	100	4.61	Yes	D008
Mercury[2]	Log	5	5	9.1900	7.3020	1.5200	8.3440	4	1.39	Yes	D009
Nickel	Log	5	5	7.6010	5.9430	0.9900	6.6220	100	4.61	Yes	(3)
Selenium	Log	5	5	1.4590	1.1390	0.3020	1.3460	20	3.00		
Silver[2]	No	5	5	470.0000	390.0000	62.0480	432.5450	100	N/A	Yes	D011
Thallium	SQRT	4	5	3.6060	2.1440	1.0700	2.8770	100	10.00		
Vanadium	Log	5	5	3.5260	3.1860	0.2460	3.3550	100	4.61		
Zinc	No	5	5	3800.0000	2248.0000	1401.2030	3208.7640	100	N/A	Yes	(3)

Comments:

(1) For analytes where there were no samples measured above the MDL value, 1/2 of the MDL value was used. (Per section B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

(2) Cadmium (D006), Chromium (D007), Lead (D008), Mercury (D009), and Silver (D011) UCL_{90} exceeded the PRQL; the applicable EPA Hazardous Waste Number is already assigned.

(3) Nickel and Zinc UCL_{90} exceed the PRQL, but are not listed under 40CFR 261 30 or as toxicity characteristic compounds per 40CFR 261 24. No EPA HWNs are assigned.

(4) The UCL90 for Berryllium is greater than PRQL, based on Acceptable Knowledge EPA HWN P015 is not applicable.

Signature of Site Project Manager

Irene Quintana
Printed Name

12/2/2010
Date

CCP Solid VOCs Summary Data

Waste Stream Number: ID-RTC-S3000 | Solids Summary Waste Stream Lot Number: 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: N/A

SPM Signature _____ Date 12/2/2010

CCP Solid SVOCs Summary Data

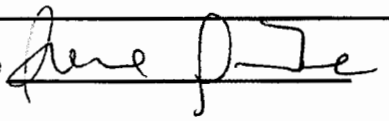
Waste Stream Number: ID-RTC-S3000 | Solids Summary Waste Stream Lot Number: 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
bis(2ethylhexyl)phthalate	1900.00	5	100.00%
Benzyl butyl phthalate	26.00	1	20.00%
Di-n-octyl phthalate	81.00	2	40.00%
Phthallic acid, 3-methylphenyl	9.40	1	20.00%

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

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

Bis(2ehtylhexyl)phthalate and di-n-octyl phthalate were identified in the waste stream > 25% of the samples. These compounds are found in plastic or packaging materials. The TICs are listed in 40CFR 261 Appendix VIII; however, the waste is not U listed and therefore the codes for the TICs are not applied. The TICs were not added to the target analyte list as the summary container in this report includes all containers associated with this waste stream.

SPM Signature  Date 12/2/2010

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: ID-RTC-S3000 Lot #: 1

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

a. See Batch Data Reports

Justification for the selection of RTR and/or VE: VE was performed at the time of packaging and sampling; therefore this characterization method for this lot was adequate because the containers met all the Data Quality Objectives for NDE of the ID-RTC-S3000 waste.

Site Project Manager Signature | Irene Quintana (Printed Name) | 12/2/2010 (Date)

CCP Reconciliation with Data Quality Objectives

WSPF# ID-RTC-S3000 Lot # 1

Sampling Completeness

RTR/VE

Number of Valid Samples: 4 Number of Total Samples Analyzed: 4
Percent Complete: 100 (QAO is 100%)

NDA

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

HSG

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

Total VOC

Number of Valid Samples (1): 5 Number of Total Samples Collected: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples (1): 5 Number of Total Samples Analyzed: 5
Percent Complete: 100 (QAO is ≥90%)

Total SVOC

Number of Valid Samples (1): 5 Number of Total Samples Collected: 5
Percent Complete: 100 (QAO is ≥90%)
Number of Valid Samples (1): 5 Number of Total Samples Analyzed: 5
Percent Complete: 100 (QAO is ≥90%)

Total Metals

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

CCP Reconciliation with Data Quality Objectives

WSPF# ID-RTC-S3000 Lot # 1

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

CCP Reconciliation with Data Quality Objectives

WSPF# ID-RTC-S3000 Lot # 1

8	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
9	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
10	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.
11	NA	Appropriate packaging configuration and Drum Age Criteria (DAC) is applied and documented in the headspace gas sampling documentation, and the drum age met prior to sampling.
12	Y (2)	TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the QAPjP.
13	NA	The PRQLs for headspace gas VOCs were met for all analyses as evidenced by the analytical batch data reports.
14		The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness (3)
Radiography	NA	NA	NA
VE	Y	Y	Y
Headspace Gas Analysis	NA	NA	NA
Solids Sampling	Y	Y	NA
Solids VOCs	Y	Y	NA
Solids SVOCs	Y	Y	NA
Solids Metals	Y	Y	NA

CCP Reconciliation with Data Quality Objectives

WSPF# ID-RTC-S3000 Lot # 1

Comments:

1. As a result of dilution requirements, some analytes were reported as non-detected with MDL values in excess of the PRQL. In accordance with Section B4-3d of the WIPP-WAP, such "U" flagged observations with elevated MDL values due to dilution were not used in calculating mean concentration. Consequently, analytes 2,4-dinitrotoluene and hexachlorobenzene could not be evaluated. For analytes acetone, butanol, methanol, methyl ethyl ketone, ethyl ether, isobutanol, and pyridine three of the five samples were used to calculate statistics.

2. Two compounds, bis (2-ethylhexyl) phthalate (CAS # 117-81-7) and di-n-octyl phthalate (CAS # 117-84-0), were identified as TICs in greater than 25 percent of the samples in this waste stream. Although these compounds are listed in 20.4.1.200 NMAC (incorporating 40 CFR 261), Appendix VIII, the applicable EPA HWNs (U028 and U017 respectively) are not assigned as they are not identified as an unused commercial chemical products. The target analyte list for this waste stream will be updated to add bis (2-ethylhexyl) phthalate and di-n-octyl phthalate.

3. Samples were not cored; core recovery can not be calculated.

Signature of Site Project Manager	Irene Quintana	12/2/2010
	Printed Name	Date

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: ID-RTC-S3000

Overview:

Waste stream ID-RTC-S3000 consists of remote-handled (RH) transuranic (TRU) homogeneous solids that were generated at the Reactor **T**echnology Complex (RTC), formerly the Test Reactor Area (TRA), and part of the Idaho National Laboratory (INL). RH waste was generated during the removal of sludge from the TRA-630 Catch Tank System (CTS) in 1987. The TRA-630 CTS was used to manage radioactive wastewater from RTC facilities. The waste is currently stored at the Idaho Nuclear Technology and Engineering Center (INTEC) at INL.

Waste stream ID-RTC-S3000 was generated by one of the atomic energy defense activities listed in Section 10101(3) of the Nuclear Waste Policy Act of 1982 (NWPA). The RTC operations are contaminated with materials from activities associated with naval reactors development, materials security and safeguards, and defense research and development (R&D) activities. Additionally, the RTC has played an integral role supporting the underlying historical and ongoing defense missions associated with the Department of Energy (DOE) test and research reactor programs. As a result of the inherent commingling of materials originating from the numerous defense activities in the CTS, segregation of a non-defense waste stream from a defense stream is not possible. Therefore the waste is defense related.

This Summation of the Acceptable Knowledge Summary Report includes information to support Waste Stream Profile Form (WSPF) ID-RTC-S3000 for stored RH TRU sludge waste from the RTC. The primary source of information for this report was CCP-AK-INL-520, *Central Characterization Project Acceptable Knowledge Summary Report for Stored Remote-Handled Transuranic Sludge Waste from Reactor Technology Complex at the Idaho National Laboratory: Waste Stream ID-RTC-S3000*, Revision 2, dated November 12, 2010. CCP-AK-INL-520 includes information obtained from numerous sources including: facility safety basis documentation, historical document archives, operations logbooks, Voluntary Consent Order system identification and characterization reports, reactor progress reports, procedures, interviews with cognizant RTC personnel, results of waste characterization programs, and site mission descriptions.

Waste Stream Identification Summary:

Waste Stream Name:	Stored Remote Handled Transuranic Sludge Waste from Reactor Technology Complex at INL
Waste Stream Number:	ID-RTC-S3000
Site Where TRU Waste Was Generated:	Idaho National Laboratory
Facility Where TRU Waste Was Generated	Reactor Technology Complex
Site Where TRU Waste is Currently Stored	Idaho National Laboratory
Waste Stream Volume- Current	2 canisters
Waste Stream Volume- Projected	0 canisters

Dates of Waste Generation:	1987
TRUCON Content Number (TRUCON):	ID311
Summary Category Group:	S3000
Waste Matrix Code:	S3120, Inorganic Sludges
Waste Matrix Code Group:	Solidified Inorganics
Waste Stream ATWIR Identification:	IN-TRA-150
RCRA EPA Hazardous Waste Numbers:	D004, D005, D006, D007, D008, D009, D010, D011, D019, D022, F002, and F005

Waste Stream Description and Physical Form

Waste stream ID-RTC-S3000 consists of RH-TRU homogeneous inorganic solids (material that is similar in physical form and hazardous constituents) generated from a single process or activity (the remediation and removal of the original catch tanks in the TRA-630 CTS). The waste matrix also includes dirt and gravel. Waste stream ID-RTC-S3000 may also contain lesser amounts of debris generated during the sludge remediation and removal activities.

Based on the review of the AK documentation, the waste may contain small amounts of the following debris materials:

- **Cellulosic** materials such as blotter paper, filter socks, rope, wipes, and protective clothing such as gloves and booties may be present in small quantities.
- **Plastic** materials including bags, bottles, buckets, hoses, rope, sheeting, and tape composed of nylon, polyethylene, polypropylene, and polyvinyl chloride.
- **Rubber** items including gloves, booties, and respirators composed of neoprene.
- **Glass** items including glass sample bottles.
- **Metal** (ferrous) items including clamps, equipment (e.g., pumps), fittings, hardware (e.g., nuts, bolts), tools, valves, and wire composed of carbon steel, iron, manganese, and stainless-steel.
- **Metal** (nonferrous) items including tools composed of or contaminated with aluminum, bismuth, chromium, cobalt, copper, fissile material fines, gadolinium, gold, Hastelloy N/R235 and Inconel (nickel-based alloys), lead, magnesium, mercury, molybdenum, nickel, niobium, palladium, rhodium, ruthenium, samarium, silver, tantalum, thallium, tin, titanium, tungsten, vanadium, yttrium, zinc, Zircaloy, and zirconium.

Waste stream ID-RTC-S3000 also contains clay absorbent. Based on the evaluation of the materials contained in this waste stream and RTC waste management practices, the waste stream is comprised of greater than 50 volume percent homogeneous inorganic solids.

The waste material that comprises waste stream ID-RTC-S3000 was generated from a single process or from an activity that is similar in material, physical form, and hazardous constituents and is therefore a single waste stream.

Point of Generation - Area and Building of Generation

Waste stream ID-RTC-S3000 was generated at the RTC (formerly the TRA) at the INL during the removal of sludge from the TRA-630 CTS. The waste is currently stored at the INTEC at INL.

Generating Process

The RTC consists of numerous buildings and facilities, including the following test reactor facilities: Materials Test Reactor (MTR), Building TRA-603, operating from 1952 to 1970; the Engineering Test Reactor (ETR), Building TRA-642, operating from 1957 to 1981; and the Advanced Test Reactor (ATR), Building TRA-670, operating from 1967 to the present. In addition to the test reactors, other RTC facilities include the RTC Hot Cells, analytical and physical laboratories, materials inspection and storage facilities, and maintenance and craft shops. The TRA-630 CTS supported these facilities in handling radioactive wastewater either directly from the facility in the case of the MTR or by receiving contaminated wastewater from the analytical laboratory and RTC Hot Cells which supported the MTR, ETR, and ATR.

TRU contaminated radioactive wastewater was generated as a result of fuel element irradiation in the test reactors operated at the facility since the early 1950s. This fuel was typically U-235, Pu-239, or other fissile TRU isotopes resulting from the production of TRU isotopes upon bombardment with neutrons. These isotopes were released to the RTC wastewater systems from the test.

Liquid waste was generated in the RTC Hot Cells from processing radioisotopes, and wash-down and decontamination of the cells or equipment. The wastewater and liquid wastes were typically mixed with de-mineralized water as part of the normal process and passed through gravity floor drains to the TRA-630 CTS.

TRA-630 CTS Operations and Sludge Removal

The original TRA-630 CTS consisted of four tanks and was constructed and used to manage hot and warm radioactive wastewater from the MTR complex, and store it temporarily prior to transfer and final disposal (based on radioactivity content) in other RTC radioactive waste management systems.

Once a tank was nearly full, the contents were sampled to determine the radioactive content and the appropriate disposition. Wastewater was considered hot if it exceeded 20,000 cpm/ml. Hot wastewater was transferred to the TRA-613 Hot Waste System (HWS) tanks. Warm wastewater was discharged from the catch tanks to the Retention Basin. After approximately 30 years of operation, the tanks were replaced as part of a tank upgrade project. During the tank upgrade project conducted between 1984 and 1986, it was discovered that the bottom of each catch tank contained sludge. Sludge remediation and removal operations were conducted from September 1987 to December 1987.

The sludge was removed by spraying water into the tanks and draining the slurry material into attached filter socks to separate most of the water from the solids. The sludge filled filter socks were then tied off and drained to remove residual water prior to packaging. The waste in ID-RTC-S3000 is the inorganic sludge that accumulated in the tanks and captured in the filter socks.

The containers in this waste stream were originally sent to the Radioactive Waste Management Complex for storage. The waste was later transferred to INTEC, formerly the Idaho Chemical Processing Plant, for interim storage, waste repackaging, and WIPP characterization activities.

MTR Operations

The MTR was the first reactor built solely for testing materials for use in other reactors. Completed in 1952, the reactor supplied a high neutron flux environment to support reactor development programs by subjecting potential nuclear fuels and structural materials to irradiation.

The MTR was constructed primarily for capsule type experiments, with experimental penetrations for capsule experiments in and surrounding the core. A capsule is a container, usually made of aluminum, about 1-inch in diameter and 6-inches in length. In its simplest form, the capsule has openings to allow the reactor cooling water to flow past the sample. Most capsules are sealed and used for fuels or corrosive materials. Within the capsules, the samples are submerged in a heat transfer medium (e.g., liquid metal if heat must be conducted away from the sample and an inert gas as insulator if the sample must be run hot). The capsules were stacked in tubular aluminum baskets and then placed into vertical holes in the reactor core or reflectors.

The MTR was retro-fitted to operate a variety of experimental loops during its operating life. Experimental loops are closed systems circulating liquids through the piping at flows, temperatures, and pressures that are independent of the rest of the reactor. Loops are typically made of Zircaloy or stainless-steel, making it possible for neutrons from the reactor to easily flow through the loop piping material and bombard the samples. In the neutron bombardment from the MTR core, the samples were part of the chain reaction as if they were in a full-sized reactor. Loop experiments at the MTR typically required different temperatures and pressures than the conditions the reactor cores operated. The equipment for each loop included pumps, pressurizers, heaters, heat exchangers, and instrument panels for environmental control and monitoring of the experiment. The MTR was shut down in August 1970; the reactor was dismantled in 1975, and is currently undergoing decontamination and decommissioning (D&D).

ATR and ETR Facilities

In the 1950s, the usefulness of the MTR was demonstrated and a demand arose for more testing facilities with higher neutron fluxes and space for larger samples. To meet this demand, the ETR was constructed and began operation in 1957. The ETR's core was larger and the neutron fluxes were four times that of the MTR. In addition, the power level attained at the ETR was 175 megawatt (MW) compared to 40 MW at the MTR. The irradiation facilities in the ETR are located inside the reactor tank, near the region of highest flux. The spaces for experiments are located within the core, within the beryllium reflector, and within an aluminum region surrounded by the beryllium. The ETR has been inactive since December 1981/January 1982 and is currently undergoing decontamination and decommissioning.

ATR is one of the world's largest, most advanced nuclear test reactors and has operated continuously for over 40 years. Construction of the ATR started in 1961 with initial reactor startup in 1967. The ATR is designed to provide high neutron fluxes in a multiplicity of high-pressure water loops of small diameter in support of the Naval Reactors program. The reactor is cooled and moderated by a downward flow of de-mineralized water through the fuel, flux traps, reflector, and control elements. This reactor is projected to remain a major program at the RTC.

RTC Hot Cells

The RTC Hot Cells (TRA-632) primarily supported the processing of materials irradiated in the nuclear reactors (MTR, ETR, and ATR) and are currently in a safe shutdown mode. Capabilities included, but were not limited to, assembly and disassembly, storage, inspection, and examination of radioactive or other hazardous materials. Nuclear R&D activities included non-destructive examinations processes such as gamma scanning, dimensional measurements, photography and optical metallography. Using remote manipulators, experiment dismantling, and other examinations, metallographic preparation and examination of irradiated materials were performed remotely within the cells (e.g., lathe work, milling, drilling, grinding, cutting, welding, mounting, lapping, and polishing).

Liquid waste was generated in the RTC Hot Cells from processing radioisotopes and wash-down and decontamination of the cells or equipment. Sample preparation milling and machining was conducted in most cases without coolants. If coolant was necessary, water was typically used. If oil-based coolants were used, the resulting chips were washed with solvents such as chlorothene (1,1,1-trichloroethane). Sample processing included the use of chemicals for dissolving, mixing, cleaning, etching, concentrating, purifying radioisotopes and to complete radioactive material examinations. Hot radioactive liquid drains were provided in the Decontamination Room, the Change Room, and in the hot cells. Drains outside of the hot cells were capped in the mid 1980s and the only known discharge to these drains was mop water from general building cleaning. The effluent from the hot cells was transferred to the TRA-630 CTS via the Building TRA-632 drain headers. The hot drains were not used for disposal of liquid organic material or large quantities of high radiation level material without approval. The wastewater and liquid wastes were typically mixed with de-mineralized water as part of the normal process and passed through floor drains to the TRA-630 CTS.

Hot Cell decontamination operations included remote decontamination, non-remote decontamination, or high pressure washing. Remote decontamination consisted of washing the cell tables, equipment, walls, and floor by spraying and/or brushing with water or decontamination solutions such as Radiacwash (mineral water with the balance being octyl phenol, tetrasodium ethylenediamine triacetate, and citric acid), Turco solutions (e.g., oxidizers, detergents, reducers), nitric acid, detergents, and sodium hydroxide. Decontamination agents were then flushed from surfaces with large quantities of water. Aluminum table tops may have been treated with sodium hydroxide followed by nitric acid to remove contamination. Nitric acid solutions may also have been used on stainless-steel. These items were then flushed with large quantities of water. Non-remote decontamination consisted of personnel making physical entry into the cell for hands-on operations using water and decontamination agents. Surfaces were washed down to remove decontamination agents and surface contaminants. Surfaces with local persistent contamination were scrubbed with concentrated decontamination agents and brushes, scrapers, or other tools and then washed to the drain with water. High pressure washing may have been conducted in conjunction with remote or non-remote decontamination operations. After the surfaces were wetted and the decontamination agent applied, the surfaces

were washed with high pressure water. Tools and equipment were also decontaminated prior to removal from the hot cells. More extensive decontamination campaigns were periodically conducted. In 1977, the cells were sandblasted and painted.

The hot cells in the TRA-632 building are currently in a safe shutdown mode. In this mode, routine operations, such as cleanup, preventative and corrective maintenance, log keeping, and surveillances are performed for the management of stored materials remaining in the RTC Hot Cells.

Alpha Wing and Radiochemistry Laboratories

The Alpha and Radiochemistry Laboratories provided analytical services and R&D capabilities for MTR, ETR, and ATR experiments, the RTC Hot Cells, as well as supported radiation and compliance activities in the RTC. The laboratories also played a key role in the characterization of legacy waste materials at the RTC. R&D activities supported arms control/nonproliferation, fusion safety (as part of an international program), and development of high-level waste separations technologies.

The south extension to the MTR Wing (TRA-661) contains the Alpha Laboratories, designed for the handling of hazardous alpha emitters such as U-233, Pu-239, Am-241, and other transuranics including Cf-252. The Alpha Wing Laboratory is currently utilized by the Applied Engineering Development Laboratory for both R&D initiatives and analytical requirements. Construction of the facility was completed in 1962, with Laboratory 127 and 128 as the only hot wastewater generators.

These laboratories have historically produced a small quantity of process wastewater from operations and cell wash-downs. Radiochemistry operations consisted of sample preparation including digestion, extraction, ion exchange, precipitation, weighing, drying, filtering, mixing, and heating. Analytical laboratory operations include mass spectrometry/x-ray fluorescence and radiation counting. Prior to 1991, the laboratories routinely discharged liquid waste down laboratory drains to the TRA-630 CTS.

MTR Laboratory Vent Scrubber System

The TRA MTR Laboratory Vent Scrubber System is located in a sump on the south side of the MTR Wing basement. The vent scrubber air system was designed to neutralize and remove acidic radioactive exhaust gases from the RTC Hot Cells, Radiochemistry Laboratories, and the Alpha Laboratories. The acid gas was precipitated with a caustic liquid spray, the liquid collected in the holding basin at the bottom of the scrubber unit, and was then recycled to the top of the scrubber. Scrubber blowdown was discharged to the TRA-630 CTS. The caustic scrubber was inactivated in 1967 and shut down and drained when the MTR was shut down in 1970.

MTR Reactor Services Building

The MTR Reactor Service Building is a high-bay structure used for warehousing and storage, receiving and testing of equipment, quality inspection, and x-ray operations. Constructed in the late 1950s, the building is equipped with floor drains and associated piping that penetrate the slab and are buried in direct contact with the soil beneath the floor slab. These drains culminate in pipe line which was originally designed to transfer radioactive wastewater from the floor drains in the Reactor Services Building to the TRA-630 pump vault. This line was reportedly

never used and was administratively removed from service in December 1971 and the drain inlet capped.

Table 1 lists the toxicity characteristic (TC) and F-listed contaminants identified in this waste stream.

Table 1 –TC and F-Listed Contaminants in Waste Stream ID-RTC-S3000

Constituent	CAS Number	EPA Hazardous Waste Number
Arsenic	7440-38-2	D004
Barium	7440-39-3	D005
Cadmium	7440-43-9	D006
Chromium	7440-47-3	D007
Lead	7439-92-1	D008
Mercury	7439-97-6	D009
Selenium	7782-49-2	D010
Silver	7440-22-4	D011
Carbon Tetrachloride	56-23-5	D019
Chloroform	67-66-3	D022
1,1,1-Trichloroethane	71-55-6	F002
Methylene Chloride	75-09-2	F002
Trichloroethylene	79-01-6	F002
Trichlorofluoromethane	75-69-4	F002
Benzene	71-43-2	F005
Methyl Ethyl Ketone	78-93-3	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. Visual Examination (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 for ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

The waste does not meet the definition of ignitability as defined in 40 CFR 261.21. The waste is not liquid, compressed gas, or an oxidizer, and is not capable of causing fire through friction, absorption of moisture, or spontaneous chemical change.

Although oxidizers were identified as being used in some of the processes that discharged waste to the original TRA-630-CTS, reagents were used in small quantities as needed, and are only present as trace contaminants. In addition, large quantities of water were used to reduce the concentration of ignitable materials during waste discharge (References C137, P232).

To ensure the waste does not exhibit the characteristic of ignitability, liquid in excess of TSDF-WAC limits was removed or immobilized, and compressed gases (e.g., aerosol cans) were removed or vented prior to WIPP disposal. Therefore, this waste stream does not exhibit the characteristic of ignitability (D001).

Corrosivity

The waste does not meet the definition of corrosivity as defined in 40 CFR 261.22.

The materials are not liquid and liquids were not added to containers during packaging. Acids used in processes that discharged waste to the original TRA-630-CTS were diluted prior to discharge. Large quantities of water were used to reduce the concentration of corrosive wastes (Reference C137, P162, and P232).

To ensure the waste does not exhibit the characteristic of corrosivity, liquid in excess of TSDF-WAC limits was removed or immobilized prior to WIPP disposal. Therefore, this waste stream does not exhibit the characteristic of corrosivity (D002).

Reactivity

The waste 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 waste will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water.

The materials do not contain cyanides or sulfides, and are not capable of detonation or explosive reaction. The materials are not liquid and VE was performed to ensure the absence of prohibited items (References C137, C155, P232, and U001).

Although sodium and sodium-potassium bonded fuel capsules were disassembled and examined, the sodium and sodium-potassium were removed with acidic or basic solutions (e.g., sodium hydroxide) during capsule disassembly or examination. Once the sodium was dissolved or removed it was discharged down the Hot Cell drains with large quantities of water. In addition, all work performed in the Hot Cells was in an air atmosphere and these materials reacted prior to discharge to the hot drains.

To ensure the waste does not exhibit the characteristic of reactivity, liquid in excess of TSDF-WAC limits was removed or immobilized, and compressed gases (e.g., aerosol cans) were removed or vented prior to WIPP disposal. Therefore, this waste does not exhibit the characteristic of reactivity (D003).

Toxicity Characteristic

Waste stream ID-RTC-S3000 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 conservatively applied to the waste stream.

Inorganic sludge from the RTC contains or is contaminated with toxicity characteristic metals. Review of the AK documentation identified the following toxicity characteristic metals either in tank samples and/or constituents of the RTC Hot Cell operations: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. In addition, the UCL90 values from CCP solids sampling and analysis exceeded the PRQL for cadmium, chromium, lead, mercury, and silver. Therefore, EPA HWNs D004, D005, D006, D007, D008, D009, D010, and D011 are conservatively assigned to waste stream ID-RTC-S3000 (References C015, C016, DR002, P009, P011, P027, U027).

A review of the AK source documents indicated that the following organic toxicity characteristic compounds were used as laboratory reagents: benzene (D018), carbon tetrachloride (D019), chloroform (D022), methyl ethyl ketone (D035), and trichloroethylene (D040). Benzene, methyl ethyl ketone, and trichloroethylene are also identified as F-listed solvents and assigned the associated F-listed HWN. Because the more specific F-listed HWNs have been assigned for these compounds, the corresponding toxicity characteristic HWNs D018, D035, and D040 are not assigned. Therefore, only EPA HWNs D019 and D022 are conservatively assigned to waste stream ID-RTC-S3000 (References DR002 and U130).

Listed Waste

Waste stream ID-RTC-S3000 was mixed with or derived from F-listed hazardous waste from non-specific sources as listed in 40 CFR 261.31. F002 (1,1,1-trichloroethane, methylene chloride, trichloroethylene, and trichlorofluoromethane) and F005-listed solvents (benzene, methyl ethyl ketone, and toluene) were used in the facilities and processes that discharged radioactive wastewater to the CTS (e.g., laboratory reagents or degreasing solvents) (References C015, C016, DR002, and U130).

Although several F001-listed solvents were identified in the AK record (i.e., 1,1,1-trichloroethane, carbon tetrachloride, methylene chloride, trichloroethylene, and trichlorofluoromethane), these listed solvents were not used in a "large-scale" degreasing operation such as cold cleaning or vapor degreasing. Large-scale degreasing operations were not conducted in the RTC facilities, and therefore, EPA HWN F001 is not assigned to this waste stream (Reference DR002).

F003 constituents, including acetone, methanol, and xylene are identified as potentially present in this waste stream as contaminants. However, F003-listed solvents are listed solely for ignitability, and this waste stream does not exhibit the characteristic of ignitability because the solvents are not in liquid form. Therefore, waste stream ID-RTC-S3000 is not an F003-listed hazardous waste (References C015, C016, DR002, and U130).

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

(F002)
1,1,1-Trichloroethane, methylene chloride, trichloroethylene, and trichlorofluoromethane

(F005)
Benzene, methyl ethyl ketone, and toluene

U, K, and P-Listed Chemicals

Waste stream ID-RTC-S3000 was not mixed with discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof (40 CFR 261.33). Based on the AK documentation reviewed, there is no evidence that unused commercial products were disposed of in TRU waste drums.

Beryllium and beryllium compounds may contaminate this waste stream. Beryllium was irradiated or utilized in the MTR, ETR, and ATR as reactor fuel cladding, core reflector material, and capsule material. In addition, these materials were processed in the RTR Hot Cells. 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. (References C137, DR002, P202, and U130).

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 in not assigned to waste stream.

Waste stream ID-RTC-S3000 does not include any of the manufacturing process wastes from the specific industries or sources listed in 40 CFR 261.32.

Waste stream ID-RTC-S3000 is not assigned any U-, K-, or P-listed EPA HWNs.

Solids Sampling/Analysis Information

Solids sampling and analysis was completed on five randomly selected containers in Lot 1 of this waste stream. No new EPA HWNs were added as a consequence of solids sampling and analysis. The UCL90 values exceeded the PRQL for beryllium, cadmium, chromium, lead, mercury, nickel, silver, and zinc. EPA HWNs are not appropriate (beryllium, nickel, and zinc) or already assigned to the waste stream for these constituents. Four Tentatively Identified Compounds (TICs), bis (2-ethylhexyl) phthalate, benzyl butyl phthalate, di-n-octyl phthalate, and phthalic acid, 3-methylphenyl, were detected in the solid samples. Two of these compounds, bis (2-ethylhexyl) phthalate and di-n-octyl phthalate were found in greater than 25 percent of the containers in this lot. Although these compounds are listed in 20.4.1.200 NMAC (incorporating 40 CFR 261), Appendix VIII, the applicable EPA HWNs (U028 and U107, respectively) are not assigned as these compounds do not meet the definition of U-listed waste (are not identified as unused commercial chemical products).

The specifics of this information are included in the attached Characterization Information Summary.

Conclusion

The following EPA HWNs are assigned to this waste stream: D004, D005, D006, D007, D008, D009, D010, D011, D019, D022, F002, and F005.

Polychlorinated Biphenyls (PCBs)

No sources of PCBs were identified as inputs into the original TRA-630 CTS. Samples of liquid from Tank 3 of the existing TRA-630 CTS did detect aroclors-1254 and -1260; however, they were detected at less than one ppm. (References C015, C016, C137, and U027). Therefore this waste stream is not regulated as Toxic Substances Control Act waste under 40 CFR 761.

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and characterization activities. Radiography 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 B-8 of the WIPP HWFP, unless specifically approved through a Class 3 permit modification.

Each container of waste is certified and shipped only after radiography or VE either:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by radiography 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 VE. VE was performed at the time of packaging and sampling; therefore this characterization method for this lot was adequate because the containers met all the Data Quality Objectives for NDE of the ID-RTC-S3000 waste.

Method for Determining Waste Material Parameter Weights per Unit of Waste

The waste material parameters (WMPs) for waste stream ID-RTC-S3000 were estimated by reviewing RTR records for the two 55-gallon drums packaged in September 1987. The RTR records provide an estimated percentage for waste materials packaged in each container. Average, minimum, and maximum WMP weight percentages were calculated using this data.

The evaluation of data for the WMP weights for ID-RTC-S3000 is documented in a memorandum as required by CCP-TP-005, *Acceptable Knowledge Documentation*.

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

Table 2. Waste Stream ID-RTC-S3000 Waste Material Parameters

Waste Material Parameter	Average Weight Percent	Weight Percentage Range
Iron-based Metals/Alloys	5.0%	2.0% - 8.0%
Aluminum-based Metals/Alloys	<1.0%	0% - <1.0%
Other Metals	<1.0%	0% - <1.0%
Other Inorganic Materials	1.0%	0% - 2.0%
Cellulosics	<1.0%	0% - <1.0%
Rubber	<1.0%	0% - <1.0%
Plastics (waste materials)	<1.0%	0% - <1.0%
Inorganic Matrix	94.0%	90.0% - 98.0%
Organic Matrix	<1.0%	0% - <1.0%
Soils/Gravel	0.0%	0% - 0%

List of AK Sufficiency Determinations

No AK Sufficiency Determinations were requested for this waste stream.

Transportation

The waste stream and chemical constituents will be 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

Containers in this waste stream have surface dose rates exceeding 200 mrem/h, but less than 1000 rem/h, and contain more than 100 nanocuries per gram (nCi/g) of waste of alpha-emitting TRU isotopes with half lives greater than 20 years. The waste is contaminated primarily with U-235 and U-238.

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 Radionuclides in Waste Stream ID-RTC-S3000

WIPP Tracked	Additional Reported Radionuclides
Am-241	Am-243
Cs-137	Cm-242
Pu-238	Cm-244
Pu-239	Co-60
Pu-240	Cs-134
Pu-242	Eu-152
Sr-90 – Not Reported	Eu-154
U-233	Eu-155
U-234	Pu-241
U-238	Sb-125
	U-232
	U-235

Payload management will not be applied to this waste stream.

Attachment 1, AK Source Documents – Supplemental Documentation

Source Document Number	AK #	Title	Document Number	Revision	Date
C004	S9	InterOffice Correspondence to K. L. Rohde, re.: Decontamination of WAPD L-12/M-13 Loop	Zim-7-65A	NA	4/7/1965
C005	S9	Two Letters to J. W. McCaslin, re.: 1) MTR Health Physics Report for May, 1966, and 2) MTR Health Physics Report for June, 1966	LJJ-40-66A and LJJ-43-66A	NA	06/16/1966, 07/11/1966
C012	S9	email and attachment to Phillip A. Erickson, re.: Catch Tank Fissile Material	NA	NA	2/26/1999
C015	S9	InterOffice Memorandum to D. W. Suthers, re.: Information Update for Advanced Test Reactor Shift Supervisors - TRA Catch Tank Systems	NA	NA	11/15/2001
C016	S9	InterOffice Memorandum to D. W. Suthers, re.: Information Update for Advanced Test Reactor Shift Supervisors - TRA Catch Tank Systems	NA	NA	11/29/2000
C065	S9	Interoffice Correspondence to F. L McMillan, re: ETR Primary Coolant Quality Control Summary	EHS-254-70	NA	7/29/1970
C103	S9	Interdepartmental Communication to B. Davis, re: TRA Hot Cell Waste Characterization	RKH-28-97	NA	9/29/1997
C104	S9	Letter to John W. McConnell, re: Resin Analysis Results	MDA-27-84	NA	3/22/1984
C105	S9	Interoffice Memorandum to J. A. Van Vliet, re: Request for RRWAC Exemption for Disposition of TRA Hot Cell Waste	RRP-99-15	NA	12/2/1999
C118	S9	Interoffice Memorandum to J. A. VanVliet, re: Request for RRWAC Exemption for Disposition of TRA Hot Cell Waste	RRP-99-15	NA	12/2/1999
C123	S9	Transuranic Waste Profile Statement Approval	DRW-01-90	NA	1/4/1990
C133	S9	TRA – MTR Sludge	NA	NA	None
C137	S7	Interview of John Baker, RTC Radiological Laboratories, re: Alpha and Radiochemistry Laboratory Operations with attachments: 1) emails between John D. Baker, Vince E. Daniel, Mike Papp, and Scott Smith re: Chemicals; and 2) selected pages from P188, Hazard Assessments for Facilities Located at the Test Reactor Area (TRA)	NA	NA	5/31/2007
C142	S7	Email to Mike Papp, re: VCO and Closure Plan Documents; email to Brett Welty, re: VCO and Closure Plan Documents	NA	NA	6/21/2007 and 6/25/2007
C145	S7	Interview with Richard S. Cain (RTC Hot Cell Facility), Tony Jones (Hot Cell Operator), John C. Martin (DOE Idaho), Steven K. McClaskey (CWI WGS), and Todd Morris (Manipulator Operator), re: RTC Hot Cell Facility Operations	NA	NA	7/26/2007
C147	S9	Interoffice Correspondence to C. D. Brooks, re: Disposal of MTR Hot Catch Tanks	DES-32-86	NA	11/20/1986
C151	S9	Interdepartmental Communication to J. L. Sherick, re: EMS-086-98 Closure Report for TRA-730 Catch Tanks	RSR-36-99	NA	4/21/1999

C153	S9	RML Gamma-Ray Analysis of Six EMS-086-98 TRA Catch Tank Samples Plus One Rinsate Sample	TCS-007-99	NA	1/27/1999
C154	S9	Interdepartmental Communication to Distribution, re: Characterization of Test Reactor Area (TRA) Catch Tanks 730-M-2 and 730-M-3	EPH-01-97	NA	1/21/1997
C155	S7	Interview with Mike Huyck, re: Management of Sodium Bonding and Target Materials	NA	NA	9/27/2007
C156	S7	Interview with Robert Beatty, re: Original Material Test Reactor Catch Tank Sampling and Removal Project	NA	NA	9/20/2007
C161	S7	Record of Communication and TRA Legacy RH-TRU Waste Data Gap Questionnaire with Dave Sheldon, TRA Waste Coordinator, re: Original Material Test Reactor Catch Tank Sampling and Removal Project	NA	NA	9/13/2007
C169	S9	Interoffice Memorandum to Mark Clark, Re: TRA 630 Catch Tank Closure Project	BKH-04-03	NA	None
C169	S12	Interoffice Memorandum to Mark Clark, Re: TRA 630 Catch Tank Closure Project	BKH-04-03	NA	None
C170	S9	InterOffice Memorandum to M.D. Clark, re: Radiation Measurements Laboratory Gamma-Ray Analysis of Four TRA-630 Catch Tank Samples Dated October 22, 2003	NA	NA	10/22/2003
C170	S12	InterOffice Memorandum to M.D. Clark, re: Radiation Measurements Laboratory Gamma-Ray Analysis of Four TRA-630 Catch Tank Samples Dated October 22, 2003	NA	NA	10/22/2003
C238	S9	InterOffice Memorandum to Mark D. Clark, re: TRA Catch Tanks 9TRA-730)	BKH-04-05	NA	2/20/2004
C240	S7	Handwritten note concerning original TRA-730 catch tank sludge removal	NA	NA	8/27/2007
C246	S9	Interoffice Memorandum from J. A. Daley to C.L. Harris reporting results of RML Gamma-Ray Analysis of Four WGS-028-01 Catch Tanks - Phase II Solids and Flocculents Samples ER-TOS-A1904 (COC 18090, 18095)	JAD-111-02	NA	10/30/2002
C248	S7	E-mail correspondence between Brian Harris, Vince Daniel, Kathy Perez, Raj Bhatt, and Anita Bhatt re: objective evidence for QA Implementation	NA	NA	3/13/2008
C249	S9	Email Correspondence between Scott Smith, Raj Bhatt, and Dennis R. Wilkinson, re: 10 Sludge Drum TRU Concentration including Excel Spreadsheets "Sludge Net nCi vs. Gross nCi with 88-21 and 88-22" and "Sludge Net nCi vs. Gross nCi without 88-21 and 88-22"	NA	NA	2/9/2010
DR002	NA	Waste Stream ID-RTC-S3000, Historical and Current RCRA Characterization and Assignment of EPA Hazardous Waste Numbers	NA	NA	10/2/2007
P005	S2	Engineering Test Reactor Operating Manual, Volume V, Effluent Waste Disposal	PPC-798	NA	Jun-65
P006	S2	Materials Testing Reactor Operating Manual, Volume I, Demineralizer and Other Water Systems	CI #1037	NA	6/1/1967

P007	S2	Materials Testing Reactor Operating Manual, Volume III, Contaminated Air Effluent and Water Disposal Systems	CI #1064	NA	10/1/1967
P009	NA	Engineering Design File, Voluntary Consent Order Tank System TRA-004 – TRA Hot Waste Management System Characterization	EDF-5160	NA	5/16/2005
P011	S9	HWMA/RCRA Tank System Closure Plan for the Test Reactor Area Catch Tank System (TRA-630), Voluntary Consent Order Action Plan VCO-5.8.d	DOE/ID-10823	NA	Mar-05
P027	NA	Voluntary Consent Order SITE-TANK-005 System Identification, TRA Warm Waste Treatment System(TRA-010), Book 3-TRA, Volume I	INEEL/EXT-2000-00037	NA	9/2001
P054	S9	Defense-Related Waste Determination for Legacy Transuranic Waste at the Idaho National Laboratory Test Reactor Area Warm and Hot Waste Systems	ICP/EXT-04-00729	NA	Apr-05
P067	S2	Advanced Test Reactor Critical Facility Safety Analysis Report	IDO-16950	NA	Jul-64
P070	S9	Beryllium Waste Transuranic Inventory in the Subsurface Disposal Area, Operable Unit 7-13/14	INEEL/EXT-01-01678	NA	Mar-03
P070	S11	Beryllium Waste Transuranic Inventory in the Subsurface Disposal Area, Operable Unit 7-13/14	INEEL/EXT-01-01678	NA	Mar-03
P076	S9	Engineering Design File: Evaluation of the TRA-730 Catch Tank System for Lead and Mercury Hazardous Waste	TRA-ATR-1269	NA	9/23/1997
P081	S3	Technical Safety Requirements for the Test Reactor Area Hot Cell Facility	Issue 009	NA	5/12/1999
P091	S2	Quality Assurance Project Plan for the HWMA/RCRA Closure Certification of the Test Reactor Area Catch Tank System (TRA-630), Voluntary Consent Order Action Plan VCO-5.8.d	INEEL/EXT-2000-01155	NA	Mar-05
P092	S9	LMITCO Internal Procedure, Radiation Measurements Laboratory (RML) Gamma-Ray Analysis of TRA-730 Materials Test Reactor (MTR) Catch Tanks EMS-086-98	INEEL/INT-99-00190	NA	Feb-99
P094	S2	Hot Cells Operating and Maintenance Manual	7.16.11	NA	5/7/1992
P099	S5	Metallurgy and Materials Science Branch Annual Report, Fiscal Year 1970	IN-1437	NA	Nov-70
P111	S3	Operations Safety Requirements Document for the TRA Hot Cell Facilities	NA	NA	2/17/1988
P112	S3	Safety Assessment Document for the TRA Hot Cells	NA	NA	04/1984, 12/09/1983, 09/24/1982
P127	S2	Engineering Test Reactor Operating Manual Volume I, Primary System	CI-1026	NA	Mar-67
P128	S2	Engineering Test Reactor Operating Manual Volume II, Secondary Coolant System	CI-1036	NA	Apr-67
P130	S2	Engineering Test Reactor Operating Manual Volume VIII, Reactor Console and Tank Operation	CI-1065	NA	Dec-67
P132	S2	Materials Testing Reactor Operating Manual Volume VI, Gamma Facility	CI-1038	NA	5/1/1967
P162	NA	Safety Analysis Report for the TRA Hot Cells	DDR NMEO-2538	NA	4/30/1987, 10/15/1992, and 8/1995

P165	S9	Amended HWMA/RCRA Tank System Closure Plan for the Test Reactor Area Catch Tank System (TRA-630)	DOE/NE-ID-11160	0	Nov-04
P166	S2	Activity Pickup (APU) Samples	DOP-4.8.77	NA	8/2/2006
P173	S9	Engineering Design File, Data and Inspection Summary of the 4" HDC-632 Line in the Test Reactor Area Catch Tank System (TRA-630), Voluntary Consent Order Action Plan VCO-5.8.d	EDF-6645	NA	2/6/2006
P191	S2	Alpha Wing Heating and Ventilating System	OMM-7.11.12.3.3	NA	8/7/2003
P195	S2	Job Safety Analysis, Determination of Environmental Levels of Tc-99 in Biological and Related Samples	TRA-ACMM-3705	NA	11/30/2004
P200	S4	Verification and Updating of the Radioactive Waste Management Information System for the Inactive TRU and Non-TRU Pits and Trenches at the RWMC SDA (Volumes I and I)	EGG-ER-10519	NA	Nov-92
P202	NA	A Regulatory Analysis and Reassessment of U.S. Environmental Protection Agency Listed Hazardous Waste Numbers for Applicability to the INTEC Liquid Waste System	INEEL/EXT-98-01213	NA	2/1999
P206	S3	Documented Safety Analysis, TRA Hot Cell Facility (TRA-632)	SAR-204	NA	12/19/2002
P208	S2	MTR Hot Catch Tank Cleanup Procedure	NA	NA	9/29/1987
P211	S2	TRA Standard Maintenance Procedure, MTR Hot Catch Tank Cleanup	2.1.16	NA	11/20/1987
P214	S2	Standard Operating Procedure, Chemical Acceptability for Waste Processing at ICPP	P.0.40	NA	2/5/1987
P215	S2	Quality Assurance Sampling and Analysis Plan for Paint Chips from MTR Catch Tanks	EMS-021-90	NA	10/13/2009
P216	S2	Cask Handling Procedure for HN-190-2 Shipping Cask	STD-P-02-019	NA	3/10/1989
P226	S10	MSDSs for Various Materials	NA	NA	Various
P232	S4	INEL Transuranic Waste Acceptance Criteria	IDO-10074	4	7/1987
P235	S6, S9	A Comprehensive Inventory of Radiological and Nonradiological Contaminants in Waste Buried in the Subsurface Disposal Area of the INEL RWMC During the Years 1952-1983, 5 Volumes	INEL-95-0310	1	Aug-95
P236	S9	Engineering Design File, Isotopic Scaling Parameters for the Reactor Technology Complex Catch Tank Sludge Waste	EDF-7692	0	2/8/2008
P237	S2	Technical Procedure, Decon Area Sample Transfers to RAL	TPR-7314	NA	5/18/2005
P246	S3	Engineering Design File, CPP-1617 Fire Area Evaluation	EDF-4684	NA	4/26/2004
P247	S2	Technical Procedure, CPP-1617 Waste Handling and Operations	TPR-7318	NA	2/1/2007
P248	S9	Engineering Design File, Groundwater Pathway Risk Assessment for the TRA-632 Hot Cell #1 Drain Line	EDF-7391	NA	4/3/2007
P275	S3	SPERT II Reactor Facility	IDO-16888	NA	8/23/1963
P275	S8	SPERT II Reactor Facility	IDO-16888	NA	8/23/1963

P283	S5	Excerpt from Proceedings of the Symposium on Chemical Phenomena Associated with Radioactivity Releases During Severe Nuclear Plant Accidents, Fission Product Deposition Behavior	NUREG/CP-0078	NA	Jun-87
P284	S5	Experimental Mixer Settler Actinide Partitioning from ICPP Acidic Wastes	ICP-1182	NA	Aug-79
P28S	S5	Partitioning Studies to Separate Actinides from ICPP HLW	WINCO-M-11322	NA	May-87
P286	S5	Isotope Dilution Analysis of Picogram Quantities of Pu, Am, and Cm in Nuclear Fuel Processing Plant Waste Streams	ICP-1094, UC-70, TID-4500	64	Jun-76
P287	S5	Excerpt from Separation Science and Technology, Solvent Extraction and Ion Exchange, The Extraction Behavior of Molybdenum using Dihexyl-N, N-Diethylcarbmoylmethylphosphonate	NA	NA	1983
P288	S5	Study of Bidentate Compounds for Separation of Actinides from Commercial LWR Reprocessing Waste	ICP-1180	NA	Feb-79
P289	S5	Excerpt from an unknown publication, Solvent Extraction and Ion Exchange, The Extraction from Nitric Acid by Dihexyl N, N-Diethylcarbmoylmethylphosphonate	NA	NA	1983
P290	S5	Actinide Removal from ICPP Wastes	ICP-1080	NA	Aug-75
P291	S5	Rapid Separation of Individual Lanthanide Elements from Mixed Fission Products	EGG-PHYS-5269	NA	Dec-80
P292	S5	Excerpt from unknown publication, An Automated System for Selective Fission Product Separations; Decays of $^{113-115}$Pd	NA	NA	Dec-80
P293	S5	Excerpt from unknown publication, A New Isotope ^{158}Sm; Comments on the Decay of ^{157}Sm	NA	NA	2/20/1980
P294	S5	Excerpt from 6th ASTM – Euratom Symposium on Reactor Dosimetry, Measurements of Fission Spectrum Averaged Cross Sections for the ^{93}Nb (n, n´) ^{93m}Nb Reaction	Paper 176	NA	Jun-87
P329	S9	Data Package for TRA-730 Catch Tanks 1, 2, 3 & 4 Sludge Removed from Original Direct Buried Tanks Removed in 1985 / 1986	NA	NA	9/1984, 10/2/1984, 11/20/1986, 11/1989, 1/10/1990
P332	S4	Characterization and Shipping Records for Remote Handled (RH) Transuranic (TRU) Waste Stored at the Radioactive Waste Management Complex (RWMC), Volumes I - X	3460-94-084	NA	Sep-94
P336	S2	Various documents related to the old MTR Hot Catch Tank Sludge Removal Project	XX333	NA	Various
P338	S3	Safety Analysis Report for the INTEC Waste Management Facility (IWMF)	SAR-103 Addendum A	NA	12/20/2006
P363	S9	Radiation Measurements Laboratory (RML) Gamma-Ray Analysis of TRA-63 Materials Test Reactor Catch Tanks EMS-086-98	INEEL/INT-99-00190	NA	Feb-99
P369	S9	Materials Test Reactor Complex Chemical Constituent Source Term	EDF-6244	NA	7/11/2007

P370	S4	Characterization and Shipping Records for Remote Handled (RH) Transuranic (TRU) Waste Stored at the Radioactive Waste Management Complex (RWMC)	3460-94-084	NA	Sep-94
P370	S8	Characterization and Shipping Records for Remote Handled (RH) Transuranic (TRU) Waste Stored at the Radioactive Waste Management Complex (RWMC)	3460-94-084	NA	Sep-94
P371	S2	RH-TRU Repackaging Operations in CPP-659 Cell 308	TPR-7298	6	TBD
P374	S9	Environmental Measurements Laboratory Semi-Annual Report of the Department of Energy, Office of Environmental Management, Quality Assessment Program	EML-565	NA	1/3/1995
P375	S2	EML Procedures Manual	HASL-300-ED26	NA	2/1/1984
P375	S5	EML Procedures Manual	HASL-300-ED26	NA	2/1/1984
P378	S2	RH-TRU – Drum Handling	TPR-7631	8	5/3/2007
P383	S9	Radiation Measurements Laboratory Quality Assurance Report - 1985-1987	ST-CS-001-89	NA	1/1/1989
P384	S9	Radiation Measurements Laboratory Quality Assurance Report - 1988	ST-CS-011-89	NA	4/1/1989
P385	S9	Environmental Measurements Laboratory Semi-Annual Report of the Department of Energy, Office of Environmental Restoration and Waste Management, Quality Assessment Program	EML-561	NA	7/1/1994
P398	S8	Engineering Test Reactor Training Guide	CI-1006	NA	Jul-66
P399	S2	Power Reactor Programs TRA Hot Cell Operations Standing Directive	21.0	NA	1/13/1993
P399	S3	Power Reactor Programs TRA Hot Cell Operations Standing Directive	21	NA	1/13/1993
P403	S5	An Automated System for Selective Fission Product Separation; Decays of $^{113-115}$Pd	NA	NA	10/22/1980
P403	S9	An Automated System for Selective Fission Product Separation; Decays of $^{113-115}$Pd	NA	NA	10/22/1980
P404	S5	Measurements of Fission Spectrum Averaged Cross-Sections for the ^{93}Nb(n,n′)	Paper 176	NA	Jun-87
P405	S5	Rapid Separation of Individual Lanthanide Elements from Mixed Fission Products	EGG-PHYS-5269	NA	Dec-80
P406	S5	Separation Science and Technology, Solvent Extraction and Ion Exchange, The Extraction Behavior of Molybdenum Using Dihexyl-N, N-Diethylcarbamoylmethylphosphonate	NA	NA	1983
P410	S2	MTR Catch Tank Resin Sampling	EMS-022—90	NA	9/21/1990
P410	S9	MTR Catch Tank Resin Sampling	EMS-022—90	NA	9/21/1990
P417	S2	Determination of Selected Actinide Nuclides and Strontium-90 in Filters and Solids	ACMM-3816	NA	11/13/2001
P419	S2	Guide: Radioanalytical Data Validation	GDE-205	0	4/5/2004
P420	S2	Guide: Radioanalytical Data Validation	TPR-80	2	5/1/1997
P425	S2	Radiological Data Validation and Associated Document Action Request (DAR)	SMO-SOP-12.1.2	NA	8/1/1991
P426	S2	Guide to Assessment of Radionuclide Analysis of INEEL Performance Evaluation Samples	GDE-204	0, 1	11/11/2003, 12/16/2004
P427	S2	Levels of Method Validation	SOP SMO-12.1.1	3	3/21/1995

P428	S2	Levels of Analytical Method Data Validation	TPR-79	4	4/17/1995
P432	S2	Quality Assurance Project Plan for the Waste Area Groups, 1, 2, 3, 4, 5, 6, 7, and 10; Quality Assurance Project Plan for Waste Area Groups 1, 2, 3, 4, 5, 6, 7, 10 and Inactive Sites	INEL-95/0086; DOE/ID-10587	4 5,6	03/01/1995, 12/10/1997, 9/1/2000
P434	S2	Determination of Strontium-89, Strontium-90, and Total Strontium	ACMM-3803	0	5/31/2000
P435	S2	Sequential Determination of Strontium-90, Nickel-63, and Iron-55	ACMM-3802	0	5/31/2000
P436	S2	Determination of 14C in Water and Ion Exchange Resin	ACMM-3800	0	5/31/2000
P437	S2	TRA Radioanalytical Sample Management	ACLP-10.10	0, 1	12/12/2001, 11/13/2001
P438	S2	Sample Management in the Analytical Chemistry Laboratory	MCP-2004	0	10/23/1997
P439	S2	Radiation Measurements Laboratory Procedure/Document: RML Sample Tracking	RML-23	1	8/26/1991
P440	S2	Radiation Measurements Laboratory Procedure/Document: Evaluation and Verification of Data for Radionuclide Identification/Selection	DM-1	7	2/1/1995
P441	S2	Radiation Measurements Laboratory Procedure: RML Procedure for Counting and Analysis of Soil, Vegetation and Mammal Samples	RML-3	5	6/20/1994
P442	S2	Radiation Measurements Laboratory Procedure: RML Procedure for Counting and Analysis of Gamma-Ray Emission of Radionuclide in Liquid Samples	RML-6	5	5/11/1994
P443	S2	Radiation Measurements Laboratory Procedure: Procedure for Gamma-Ray Analysis and Reporting of Terrestrial Samples and Other Solids	DM-9	7	3/20/1995
P444	S2	Radiation Measurements Laboratory Procedure: Procedure for Gamma-Ray Analysis and Reporting of Water Samples and Other Liquids	DM-11	6	3/23/1995
P445	S2	Radiation Measurements Laboratory Procedure: Procedure for Gamma-Ray Energy Calibration, Calibration Standard Check & Instrument Background Check for GE Detector Based Spectrometers	RML-17	1	1/29/1991
P446	S2	Selected Actinide Separation by Solid Phase Extraction	ACMM, Volume II, Method 3200, ACT-Sp-1	1	2/6/1997
P447	S2	Gamma Spectrometry Using the Sun Sparcstation 2 (Gamma-Scan-2)	ACMM-3993	6	9/23/1998
P448	S2	Analytical Laboratories Department Training and Qualification Program	MCP-2006	1	10/27/1997
P449	S2	Operator's Guide for Using INEL-Specific VAXGAP Programs	EGG-PHY-10338	NA	Aug-92
P451	S2	Gross Alpha/Beta Measurements	ACMM-3608	0	3/13/2002
P452	S2	RML Germanium and LEPS Detector Calibration	ACLP-10.41	0	5/18/2000
P453	S2	Evaluation and Verification of Data for Radionuclide Identification/Selection	ACLP-10.31	0	10/30/2001
P455	S2	Radiation Measurements Laboratory Procedure, RML Routine Counting/Analysis Guide	RML-12	2	6/4/1991

P456	S8	Operator's Guide for VAXGAP, a Gamma-Ray Spectrum Analysis Package	EGG-2672	NA	Aug-92
P459	S8	Networked Alpha & Gamma Spectral Acquisition and Analysis System	WINCO-1154	NA	10/1/1993
P460	S2	Radiochemical Analysis Procedure, Tritium Determination in Water	RAP 5	NA	1/31/1992
P461	S2	Radiochemical Analysis Procedure, Carbon-14 Determination in Water	AP 6	NA	1/31/1992
P462	S2	Radiochemical Analysis Procedure, Determination of Strontium-90 in Soil, Water, and Filter Samples	RAP 17	NA	10/1/1993
P466	S2	Business Assessment	MCP-4	1	8/15/1997
P467	S2	Self-Assessment Process for Continuous Improvement	MCP-8	6	1/23/2002
P468	S2	Control of Nonconforming Items	MCP-538	12	8/23/2001
P469	S2	Corrective Action System	MCP-598	14	1/11/2001
P470	S2	Management Control Procedure, Managing Records	MCP-557	6	7/5/2001
P471	S2	Sample Management	MCP-2864	2	7/1/1999
P472	S2	Analytical Corrective Actions and Deficiency Tracking	MCP-2018	0	4/14/1997
P473	S2	Laboratory Procedures: Documentation and Record Storage	ACLP-5.500	9	9/10/2002
P474	S2	Control of the Analytical Chemistry Laboratory Procedures, Control of Analytical Methods and Procedures	MCP-2001	0, 4	10/05/1995, 08/15/2001
P475	S2	Analytical Chemistry Chain of Custody	MCP-2002	0, 4	11/01/1995, 09/11/2000
P476	S2	Sample Management in the Analytical Chemistry Laboratory	MCP-2004	1	2/25/1999
P477	S2	Analytical Data Recording, Review, and Reporting	MCP-2008	3	10/7/2002
P478	S2	Analytical Software Control	MCP-2009	5	7/10/2002
P479	S2	Lessons Learned System	MCP-192	8	5/29/2002
P485	S2	Decontamination Cell Operation in CPP-659	TPR-7298	7, 14	06/16/2009; 06/04/2008
P486	S2	Document Preparation, Review, Approval, and Control	MCP-9179	4	11/20/2002
P487	S2	Radiation Measurements Laboratory Old Procedures Book 1	NA	NA	10/18/1979 thru 10/19/1988, not inclusive
U001	S11	Aerojet Nuclear Company, EG&G Experiment Logs, and Facility Log for HCF; WWTF handwritten log	NA	NA	11/12/1973 - 8/9/1996, not inclusive
U002	S2	TRA Outer Area Operating and Maintenance Manual	OMM-7.11	NA	11/9/1979 - 3/29/1982
U005	S7	Summarization of RWMC Subsurface Disposal Area Source Term Interviews	NA	NA	Aug-90
U027	S9	TRA-730 Catch Tank Analytical Data Summary Table	NA	NA	3/23/1999
U046	S9	Radiation Measurements Laboratory (RML) Gamma-Ray Spectrometry Summary Report, 2x2x2 Combustible Box	NA	NA	8/20/1997
U049	S5	Hot Cell 2 Logbook	NA	NA	1961 to 1985, not inclusive

U115	S9	MTR Catch Tank Transuranic Waste Data	NA	NA	1/4/1990
U116	S9	Alpha Analysis of Sludge from MTR Storage Tanks	NA	NA	9/12/1986
U117	S9	Packet of documents concerning the sludge in the MTR Catch Tanks	NA	NA	8/2S/1986 to 1/4/1990, not inclusive
U118	S9	Waste Profile Statement for Transuranic and Transuranic Mixed Waste Streams, Content Code 151	TRA-88-11	NA	1/3/1990
U120	S9	Waste Profile Statement for Transuranic and Transuranic Mixed Waste Streams, Content Code 151	TRA-88-13	NA	1/3/1990
U121	S9	Waste Profile Statement for Transuranic and Transuranic Mixed Waste Streams, Content Code 151	TRA-88-21	NA	1/3/1990
U122	S9	Waste Profile Statement for Transuranic and Transuranic Mixed Waste Streams, Content Code 151	TRA-88-22	NA	1/3/1990
U123	S9	Waste Profile Statement for Transuranic and Transuranic Mixed Waste Streams, Content Code 151	TRA-88-31	NA	1/3/1990
U124	S9	Waste Profile Statement for Transuranic and Transuranic Mixed Waste Streams, Content Code 151	TRA-88-32	NA	1/3/1990
U125	S9	Waste Profile Statement for Transuranic and Transuranic Mixed Waste Streams, Content Code 151	TRA-88-41	NA	1/3/1990
U126	S9	Waste Profile Statement for Transuranic and Transuranic Mixed Waste Streams, Content Code 151	TRA-88-42	NA	1/3/1990
U127	S9	Waste Profile Statement for Transuranic and Transuranic Mixed Waste Streams, Content Code 151	TRA-88-43	NA	1/3/1990
U130	NA	Data Package for TRA Hot/Warm Waste Systems "Listed" Hazardous Waste Issue Chronology & Resolution	NA	NA	5/7/2002
U131	S9	Historical Background Report for Remote Handled-Transuranic Waste Generated at the Reactor Technology Complex Facility at Idaho National Laboratory	NA	NA	6/21/2005
U142	S5	CPP Production Monthly Reports, 12/27/65 through 12/26/66	Various	NA	2/3/1966 To 12/30/1966
U143	S2	TAN "Cold" Startup Test and Normal "Hot" Operating Procedures for the Radioactive Waste Evaporation System PM-2A	NA	2	7/12/1971
U144	S7	Historical Perspective of Solvent Usage at TAN	WM-ERP-91-008	NA	Apr-92
U146	S2	TAN Operating Procedures for the Radioactive Waste Evaporation System PM-2A – II and III	NA	3	Jan-73
U175	S4	Integrated Waste Tracking System Container Profile Information Only for the Containers of MTR Hot Catch Tank Sludge	Various	NA	3/18/1997 (printout 9/24/2007)
U175	S6	Integrated Waste Tracking System Container Profile Information Only for the Containers of MTR Hot Catch Tank Sludge	Various	NA	3/18/1997 (printout 9/24/2007)
U182	S9	Spectrochemical Analysis, MTR Catch Tanks	86-102013	NA	10/13/1986
U184	S8	30-In ILTSF Vault Specifications	NA	Draft	11/30/1990

U185	S9	TRA-730 Catch Tank Remediation, LMITCO SOW ER-SOW-298, B&W Services-NELS Project No. 432-2278-00, LTI# 9901047, SDG 08698011, Organics	Report Number 9901047 Organics	0	2/24/1999
U190	S2	Sampling Plan for TRA Catch Tanks	SAP #951208	NA	NA
U196	S2	Site Work Release #CX201, Cobalt Removal from HWST #3 & #4	P09PM147-A	NA	5/31/1994
U198	S9	ESP-088-04 TRA Catch Tank System (TRA-630)-TRA-730 Tanks	F5D090105, F5D090107, F5D080365, F5D080347, F5D080386	NA	04/27/2005, 04/28/2005, 04/29/2005, 05/03/2005
U199	S9	Miscellaneous Sample Analysis Data	ER-TOS-A2410	NA	04/13/2005, 04/18/2005, 04/29/2005, 04/30/2005
U200	S7	Handwritten Log: Sampling TRA Catch Tanks	Log # 951208	NA	06/19/1996 to 11/14/1996
U204	S9	RML Gamma-Ray Analysis of our WGS-028-01 TRA 730 Catch Tanks - Phase II Solids and Flocculents Samples ER-TOS-A1904 (COC 8566) - JAD-110-02 (Pair of analyses: 1) Radiation Measurements Laboratory Gamma-Ray Analysis Results WGS-028-01 TRA-730 Catch Tanks Screen Samples - 10/09/2002; 2) Gamma-Ray Analysis Results WGS-028-01 TRA-730 Catch Tanks – Phase II Solids and Flocculents GNUL Report Period 101002 to 101002)	JAD-110-02	NA	10/09/2002, 10/30/2002
U205	S9	Radiation Measurements Laboratory Gamma-Ray Analysis Results of WGS-028-01 TRA-730 Catch Tanks – Phase II Solids and Flocculents GNUL Report Period 100902 to 100902	NA	NA	10/30/2002
U206	S9	Radiation Measurements Laboratory Gamma-Ra Analysis Results WGS-028-01 TRA-730 Catch Tanks 10/10/02 Screens	NA	NA	10/10/2002
U210	S9	INL RH TRU Radiological Characterization: TRA Sludge RH TRU Radiological Characterization, Sample Data Check	Calc No. INL-RH-20	0	04/17/2008, 11/07/2008
U211	S9	INL RH TRU Radiological Characterization: TRA Sludge RH TRU Radiological Characterization, Scaling Factor Calculation	Calc No. INL-RH-21	0	04/17/2008, 11/07/2008
U212	S9	INL RH TRU Radiological Characterization: TRA Sludge RH TRU Radiological Characterization, T-Test of Scaling Factors	Calc No. INL-RH-22	0	04/17/2008, 11/07/2008
U213	S9	INL RH TRU Radiological Characterization: TRA Sludge RH TRU Radiological Characterization, Radioactive Decay Characterization	Calc No. INL-RH-23	0	04/17/2008, 11/07/2008
U214	S9	INL RH TRU Radiological Characterization: TRA Sludge RH TRU Radiological Characterization, ORIGEN2.2 Calculations	Calc No. INL-RH-24	0	04/17/2008, 11/07/2008
U215	S9	INL RH TRU Radiological Characterization: TRA Sludge RH TRU Radiological Characterization, Uranium and Plutonium Isotopic Calculations	Calc No. INL-RH-25	0	04/17/2008, 11/07/2008

U216	S9	INL RH TRU Radiological Characterization, Dose-to-Curie Derivation for Cs137 and Co60	Calc No. INL-RH-26	0	4/17/1988
U217	S9	INL RH TRU Radiological Characterization, DTC Spreadsheet	Calculation No. INL-RH-28	0	04/17/2008, 11/07/2008
U218	S9	INL RH TRU Radiological Characterization, Uncertainty Analysis	Calc No. INL-RH-29	0	04/17/2008, 11/07/2008
U219	S9	INL RH TRU Radiological Characterization, Radiological Hazard Calculation	Calc No. INL-RH-30	0	4/17/2008, 11/07/2008
U221	S8	Packet of Documents associated with Purchase Order Number 11077	Various	NA	Various
U222	S8	Packet of Documents associated with Purchase Order Number 10990	Various	NA	Various
U223	S8	Records Inventory Disposition Schedule and Supporting Documentation	NA	NA	12/1/1992
U224	S8	Small Waste Tanks Sampling and Retrieval System	INEEL/CON-02-00132, Preprint	NA	8/4/2002
U226	S9	INL RH TRU Radiological Characterization, TRA Sludge RH TRU Waste; Dose-to Curie Relationship between Dose Rate and Waste Density for Co-60 and Cs-137	Calc No. INL-RH-27	0	11/7/2008
U230	S2	Site Work Release, Sample MTR Hot Catch Tanks for Disposal; SWR Field Change Sheet, Sample MTR Hot Catch Tanks for Disposal	SWR XX0720, SWR XX072X	NA	08/07/1986, 08/11/1986
U245	S9	INL RH TRU Sludge RH TRU Radiological Characterization, DTC Spreadsheet - INL Sludge Waste	INL-RH-106	0	4/9/2010

Alphanumeric Designations

C Correspondence
DR Discrepancy Resolution
P Published Sources
U Unpublished Data

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
NA Not a supplemental source document, but cited in the AK Summation