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

DEC 13

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 Waste Stream Profile Form Number IN-ID-NRF-153, Remote-Handled Transuranic Debris Waste from the Naval Reactors Facility

Dear Mr. Bearzi:

The Carlsbad Field Office (CBFO) has approved the Waste Stream Profile Form (WSPF), IN-ID-NRF-153, Remote Handled Transuranic Debris Waste from the Naval Reactors Facility.

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 Court Fesmire at (575) 234-7548.

Sincerely,

E Ziemianski

Edward Ziemianski
Acting Manager

Enclosure

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

cc: w/o enclosure
J. Kieling, NMED ED
G. Basabilvazo, CBFO ED
N. Castaneda, CBFO ED
C. Fesmire, CBFO ED
C. Gadbury, CBFO ED
S. McCauslin, CBFO ED
G. Sena, 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:10-2044:UFC 5900.00

101213

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: IN-ID-NRF-153							
(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-NRF-153					(11) Summary Category Group: S5000		
(12) Waste Matrix Code Group: Combustible Waste					(13) Waste Stream Name: Remote Handled Transuranic Debris Waste from the Naval Reactors Facility		
(14) Description from the TWBIR: This waste stream consists of 27 debris waste drums generated during analysis of post-irradiated nuclear fuel assemblies from naval reactor programs, using destructive examination methods.							
(15) Defense TRU Waste:	YES	X	NO				
(16) Check One:	CH		RH	X			
(17) Number of SWBs	(18) Number of Drums				(19) Number of Canisters[3]		
0	0				9		
(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, D010, D011 and F002							
(22) Applicable TRUCON Content Numbers: ID 321							
(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-560, Rev. 3, November 15, 2010 Attachments 5, 6 & 7							
(23B) Facility mission description: : CCP-AK-INL-560, Rev. 3, November 15, 2010, Sections 2.0 & 4.1							
(23C) Description of operations that generate waste: CCP-AK-INL-560, Rev. 3, November 15, 2010, Section 4.2 & 5.3							
(23D) Waste identification/categorization schemes: CCP-AK-INL-560, Rev. 3, November 15, 2010, Section 4.2 & 5.4							
(23E) Types and quantities of waste generated: CCP-AK-INL-560, Rev. 3, November 15, 2010, Sections 4.2, 5.2 & 5.4							
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-INL-560, Rev. 3, November 15, 2010, Section 4.2.2.							
(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-560, Rev. 3, November 15, 2010, Section 5.1			
(25B) Waste stream volume and time period of generation: CCP-AK-INL-560, Rev. 3, November 15, 2010, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-INL-560, Rev. 3, November 15, 2010, Sections 4.2 and 5.3			
(25D) Waste Process flow diagrams: See CCP-AK-INL-560, Rev. 3, November 15, 2010, Attachment 4			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-INL-560, Rev. 3, November 15, 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: IN-ID-NRF-153			
(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: See S1 AK#s on Attachment 1 to Summation of Aspects of AK Summary Report			
(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: NA			
(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: CCP-TP-508, Revisions 2, 2/27/09; 3, 4/22/09; 4, 6/30/10; 5, 7/14/10		
(29)	Visual Examination: NA		

(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:** 11/3/10

Reviewed by STR (if necessary): YES [X] NA [ ] **Date:** 11/15/10

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)	(33)
Signature of Site Project Manager	Irene Quintana Printed Name	12/2/10 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 27 30-gallon drums; 26 of which have been overpacked into 55-gallon drums.
(4) The defense activities that generated this waste also include defense research and development.

CHARACTERIZATION INFORMATION SUMMARY

WSPF # IN-ID-NRF-153

Lot 1

TABLE OF CONTENTS

CCP Characterization Information Summary Cover Page

Waste Stream #: IN-ID-NRF-153 Lot #: 1

AK Expert Review: Jim Lugenbyhl Date: 11/30/2010

SPM Review: Irene Quintana Date: 11/30/2010

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:

Headspace Gas Sampling and Analysis (HSG):

CCP-TP-093	Rev. 13	03/19/07	CCP Sampling of TRU Waste Containers
CCP-TP-106	Rev. 8	07/12/07	CCP Headspace Gas Sampling Batch Data Report Preparation
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. 0	05/02/07	CCP Analysis of Gas Samples for VOCs by GC/MS

Real-Time Radiography (RTR):

CCP-TP-508	Rev. 5	07/14/10	CCP RH Standard Real-Time Radiography Inspection Procedure
CCP-TP-508	Rev. 4	08/30/10	CCP RH Standard Real-Time Radiography Inspection Procedure
CCP-TP-508	Rev. 3	04/22/09	CCP RH Standard Real-Time Radiography Inspection Procedure
CCP-TP-508	Rev. 2	02/27/06	CCP RH Standard Real-Time Radiography Inspection Procedure

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 18	09/09/10	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	08/30/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	08/04/09	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 20	08/18/08	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 17	11/09/09	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-003	Rev. 16	10/02/07	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 20	11/01/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/10	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 18	11/18/08	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	09/30/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 17	06/23/09	CCP Transuranic Waste Characterization Quality Assurance Project Plan

CIS 3

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # IN-ID-NRF-153 Lot # 1

Container ID Number	Historical Container ID	NDA BDR or Radiological Characterization BDR (CH only)	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Permit Required Headspace Gas BDR		
								Sample	Analysis	
IDINEC0100003*	NA	NA	NA	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0100004	NA	NA	INLRHRTR09005	NA	NA	NA	NA	NA	NA	NA
IDINEC0100005	NA	NA	INLRHRTR09004	NA	NA	NA	NA	NA	NA	NA
IDINEC0100006	NA	NA	INLRHRTR09003	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0100007	NA	NA	INLRHRTR09005	NA	NA	NA	NA	NA	NA	NA
IDINEC0100008	NA	NA	INLRHRTR09002	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0100009	NA	NA	INLRHRTR09003	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0100011*	NA	NA	NA	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0100013	NA	NA	INLRHRTR09002	NA	NA	NA	NA	NA	NA	NA
IDINEC0200001	NA	NA	INLRHRTR09004	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0200004*	NA	NA	NA	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0200005	NA	NA	INLRHRTR09002	NA	NA	NA	NA	NA	NA	NA
IDEC0200006	NA	NA	INLRHRTR09003	NA	NA	NA	NA	NA	NA	NA
IDINEC0200009	NA	NA	INLRHRTR09004	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0300001	NA	NA	INLRHRTR09005	NA	NA	NA	NA	NA	NA	NA
IDINEC0300002	NA	NA	INLRHRTR09003	NA	NA	NA	NA	NA	NA	NA
EC0300003**	NA	NA	INLRHRTR09002	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0300004	NA	NA	INLRHRTR09004	NA	NA	NA	NA	INHSGS090004	ECL09010M	ECL09010G
IDINEC0300006	NA	NA	INLRHRTR09002	NA	NA	NA	NA	NA	NA	NA

* Containers included for the HSG Characterization Module for WDS but are not certifiable.

** Container was overacked into 55-gallon container and is also tracked as IDINEC0300003

Signature of Site Project Manager

Irene Quintana — Printed Name

11/30/2010 — Date

Page 6 of 28

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: IN-ID-NRF-153 **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	Log	1	10	-2.72	-3.49	0.33	-3.34	10	2.30		
Bromoform	Log	0	10	-4.42	-4.82	0.20	-4.73	10	2.30		
Carbon tetrachloride	Log	0	10	-3.59	-3.97	0.20	-3.88	10	2.30		
Chlorobenzene	Log	0	10	-3.40	-3.78	0.20	-3.69	10	2.30		
Chloroform	Log	0	10	-3.17	-3.55	0.20	-3.46	10	2.30		
Cyclohexane [a]	Log	0	10	-3.04	-3.42	0.20	-3.34	10	2.30		
1,1-Dichloroethane	Log	2	10	1.89	-2.44	1.55	-1.76	10	2.30		
1,2-Dichloroethane	Log	0	10	-3.17	-3.55	0.20	-3.46	10	2.30		
1,1-Dichloroethylene	Log	0	10	-3.04	-3.42	0.20	-3.33	10	2.30		
cis-1,2-Dichloroethylene	Log	0	10	-3.56	-3.94	0.20	-3.85	10	2.30		
trans-1,2-Dichloroethylene	Log	0	10	-3.47	-3.85	0.20	-3.77	10	2.30		
Ethyl benzene	Log	4	10	-2.21	-3.24	0.66	-2.95	10	2.30		
Ethyl ether	Log	0	10	-2.81	-3.21	0.20	-3.12	10	2.30		
Methylene chloride	Log	0	10	-3.07	-3.45	0.20	-3.37	10	2.30		
1,1,2,2-Tetrachloroethane	Log	0	10	-3.65	-4.04	0.20	-3.95	10	2.30		
Tetrachloroethylene	Log	0	10	-3.61	-3.99	0.20	-3.91	10	2.30		
Toluene	Log	7	10	1.16	-2.42	1.49	-1.77	10	2.30		
1,1,1-Trichloroethane	Log	6	10	1.67	-2.10	2.25	-1.12	10	2.30		
Trichloroethylene	Log	0	10	-3.75	-4.13	0.20	-4.05	10	2.30		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	0	10	-3.67	-4.05	0.20	-3.96	10	2.30		
1,2,4-Trimethylbenzene [a]	Log	0	10	-3.46	-3.84	0.20	-3.76	10	2.30		
1,3,5-Trimethylbenzene [a]	Log	0	10	-3.44	-3.82	0.20	-3.74	10	2.30		
m/p-Xylene [b]	SQRT	8	10	0.58	0.36	0.15	0.43	10	3.16		
o-Xylene	Log	3	10	-1.83	-3.18	0.76	-2.84	10	2.30		
Acetone	No	10	10	24.00	11.12	7.84	14.55	100	N/A		
Butanol	SQRT	8	10	0.99	0.52	0.25	0.63	100	10.00		
Methanol	No	0	10	10.00	9.85	0.24	9.96	100	N/A		
Methyl ethyl ketone	Log	10	10	1.61	0.29	0.98	0.72	100	4.61		
Methyl isobutyl ketone	Log	2	10	-1.43	-3.26	0.69	-2.96	100	4.61		

CCP Headspace Gas UCL_{90} Evaluation Form

CIS 5

WSPF #: IN-ID-NRF-153 **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Chloromethane[c]	Log	2	10	-1.31	-2.96	0.68	-2.66	10	2.30		
Carbon Disulfide[a]	Log	4	10	-2.39	-3.05	0.52	-2.83	10	2.30		
1,2-Dichloropropane[a]	Log	0	10	-4.07	-4.45	0.20	-4.37	10	2.30		
Trichlorofluoromethane[c]	Log	0	10	-1.17	-3.67	0.20	-3.59	10	2.30		

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

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

[c] Noted analytes are not required but are reported by the Environmental Chemistry Laboratory at Idaho and are included on the UCL90 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 B4 of the WAP, 1/2 of the MDL value is used in calculating the mean concentration.)

Signature of Site Project Manager

Irene Quintana
Printed Name

11/30/2010
Date

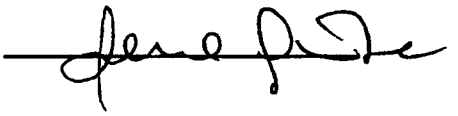
CCP Headspace Gas Summary Data

Waste Stream Number IN-ID-NRF-153 Lot Number (s) 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
2-Methyl-1-propanol	0.80	2	20.00%
1,4-Dioxane	1.10	2	20.00%

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

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

SPM Signature  Date 11/15/2010

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: IN-ID-NRF-153 Lot(s)#: 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.	None of the containers in this lot had prohibited items identified during Radiography.	Visual Examination was not used to verify prohibited items.

a. See Batch Data Reports

Justification for the selection of RTR and/or VE: RTR of waste IN-ID-NRF-153 was the appropriate method for characterizing this waste stream because the data quality objectives for RTR were achieved. The waste was previously packaged and VE was not the preferred option as prohibited items were not encountered and remediation was not necessary.

Site Project Manager Signature | Irene Quintana (Printed Name) | 11/30/2010 (Date)

CCP Reconciliation with Data Quality Objectives

WSF# IN-ID-NRF-153 Lot # 1

Sampling Completeness

VE

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

RTR

Number of Valid Samples: 16 Number of Total Samples Analyzed: 16
Percent Complete: 100 (QAO is 100%)

HSG

Number of Valid Samples: 10 Number of Total Samples collected: 10
Percent Complete: 100 (QAO is ≥90%)

Total VOC

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

Total SVOC

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

Total Metals

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

CCP Reconciliation with Data Quality Objectives

WSF# IN-ID-NRF-153 Lot # 1

	Y/N/NA	Reconcilliation 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	NA	AK Sufficiency. Is there an approved AK Sufficiency Determination for this waste stream?
6	Y	Mean concentrations, UCL90 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	NA	Mean concentrations, UCL90 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	NA	Mean concentrations, UCL90 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	NA	Mean concentrations, (UCL90) 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

WSF# IN-ID-NRF-153 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 B3-1 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 CCP-PO-001 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
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: N/A

Signature of Site Project Manager | Irene Quintana (Printed Name) | 11/30/2010 (Date)

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: IN-ID-NRF-153

Overview:

Waste stream IN-ID-NRF-153 consists of remote-handled (RH) debris waste generated by the Alpha Box in the Expended Core Facility (ECF) at the Naval Reactors Facility (NRF), located within the boundaries of the Idaho National Laboratory (INL). The RH transuranic (TRU) waste generated by these operations was transferred to the Radioactive Waste Management Complex for interim storage in the Intermediate Level Transuranic Storage Facility vaults. The waste was moved in 2005 to the Idaho Nuclear Technology and Engineering Center (INTEC) facility where it is currently stored in the INTEC Waste Management Facility.

Based on the review of acceptable knowledge (AK), the RH TRU waste generated by the Alpha Box operations in the NRF is contaminated with materials from atomic energy defense activities associated with naval reactors development, and defense research and development activities. This waste stream was generated during the sectioning of fuel elements from primarily naval reactor fuels for evaluation of fuel performance and the cleaning of the Alpha Box after the sectioning operations. Waste stream IN-ID-NRF-153 is therefore defense related waste.

This Summation of the Acceptable Knowledge Summary Report includes information to support Waste Stream Profile Form (WSPF) IN-ID-NRF-153 for stored RH TRU combustible debris from the NRF. The primary source of information for this report was CCP-AK-INL-560, *Central Characterization Project Acceptable Knowledge Summary Report for Idaho National Laboratory Remote Handled Transuranic Debris Waste from the Naval Reactors Facility: Waste Stream IN-ID-NRF-153*, Revision 3, dated November 15, 2010. CCP-AK-INL-560 includes information obtained from numerous sources, including facility safety basis documentation, historical document archives, generator and storage facility waste records and documents, interviews with cognizant personnel, and program/process documents.

Waste Stream Identification Summary:

Site Where TRU Waste Was Generated: Idaho National Laboratory

Site Where TRU Waste is Currently Stored: Idaho National Laboratory

Waste Stream Name:	Remote Handled Transuranic Waste from the Naval Reactors Facility
Waste Stream Number:	IN-ID-NRF-153
Dates of Waste Generation:	1975 - 1979
Summary Category Group:	S5000
Waste Matrix Code Group:	Combustible Waste
Waste Matrix Code:	S5300

Waste Stream TWBIR Identification:	IN-NRF-153
Waste Stream Volume - Current:	9 canisters[1]
Waste Stream Volume - Projected:	0 canisters
RCRA EPA Hazardous Waste Numbers:	D004, D005, D006, D007, D008, D010, D011, and F002
RH TRUCON Content Number (TRUCON):	ID 321

Waste Stream Description and Physical Form:

Waste stream IN-ID-NRF-153 consists of RH TRU debris waste that was generated from NRF operations associated with the operations of the Alpha Box. Waste Stream IN-ID-NRF-153 consists predominantly of combustible organic debris waste materials contaminated during the sectioning of fuel elements for examination.

Examples of waste in this waste stream include: paper, cotton, and cloth items, including wipes, diaper cloth, towels, rags, vacuum bags, cardboard, and wooden items such as rulers, file handles, paint brushes, polyethylene, polypropylene, polyvinyl chloride, polyurethane, polyurethane with hypon, brush bristles and handles, Tygon, nylon, vinyl (Krene), Stryrofoam, epoxy, Plexiglass items, plastic sheeting, tape, tubing, pipe, buckets, bottles, vials, vacuum attachments, paint, cartridge filter media, Neoprene, koroseal, and latex items, including gaskets, silicon rubber sealant, Room Temperature Vulcanizing adhesive, rubber fingertip covers, Buna-N rubber, rubber tubing, wire/cord insulation, glass, glassine, and fiberglass, including bottles, test tubes, laboratory glassware, incandescent light bulbs, fiberglass filters, insulation, ferrous materials made from carbon steel, stainless-steel, and iron. Non-ferrous materials include items made from aluminum, brass, copper, lead, tin, zirconium (zircaloy), metal cans, sample tubes, cable, wire, equipment, and hardware (nuts and bolts).

Waste Stream IN-ID-NRF-153 contains lesser amounts (less than 50 percent by volume in any container) of homogeneous organic and inorganic materials. Small quantities of floor sweepings and Fuller's Earth absorbent are packaged with the debris.

Waste Matrix Code S5300, Combustible Waste, is assigned to Waste Stream IN-ID-NRF-153. The waste that comprises waste stream IN-ID-NRF-153 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.

[1] This waste stream consists of 27 30-gallon drums, 26 of which have been overpacked into 55-gallon drums.

Point of Generation

Location

Waste stream IN-ID-NRF-153 is stored at INL. The waste stream was generated at the NRF, which is located within the boundaries of the INL.

Area and/or Buildings of Generation

Waste stream IN-ID-NRF-153 was generated in the Alpha Box in Building 618 of the ECF at the NRF, which is located within the boundaries of the INL. The Alpha Box was a special enclosure used in the hot cells.

Generating Process

Waste Stream IN-ID-NRF-153 was generated during clean-up and maintenance activities following operations in the Alpha Box which was performed between operations for each type of fuel. Although the Alpha Box was available for use for 20 years, waste stream IN-ID-NRF-153 was only generated over five years of Alpha Box operations, 1975 to 1979.

The irradiated materials program evaluated small specimens of materials for use in naval reactor systems. The specimens were loaded in sample holders and placed in test assemblies at the ECF. The assemblies were irradiated at the Advanced Test Reactor and returned to the ECF for disassembly and inspection. A typical specimen underwent several cycles of irradiation and examination. The Alpha Box was used for remote sectioning of the irradiated fuel specimens to obtain specific portions for subsequent destructive tests. Destructive tests were used to analyze the behavior of nuclear fuel.

An abrasive cut-off wheel was used to section the fuel elements. The lower portion of the cutting wheel was immersed in water that kept the wheel cool and acted as a lubricant. The used abrasive wheels are not part of this waste stream. Most of the fuel chips that were cut away by the abrasive wheel fell into the sludge pan beneath the cut-off wheel and are not part of this waste stream.

Some of the material removed by the wheel was considered lost into the Alpha Box. When the Alpha Box was cleaned out, the material lost into the box was picked up by the cleaning materials. It is those cleaning materials, and related maintenance activity material, that make up Waste Stream IN-ID-NRF-153.

The Alpha Box logbook was kept current and used to record the specific details of Alpha Box activity. That included fuel element sectioning, equipment installation, and cleaning.

Table 1 identifies toxicity characteristic (TC) and F-listed constituents in waste stream IN-ID-NRF-153.

Table 1 – F-Listed and Toxicity Characteristic Contaminants for Waste Stream IN-ID-NRF-153

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
Selenium	7782-49-2	D010
Silver	7440-22-4	D011
1,1,1-Trichloroethane	71-55-6	F002

RCRA Determinations - Hazardous Waste Determinations

Ignitability, Corrosivity, Reactivity

Waste stream IN-ID-NRF-153 does not qualify for any of the exclusions outlined in 40 CFR 260 or 261. Real Time Radiography (RTR) 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. Potentially corrosive and reactive chemicals were not allowed into the Alpha Box during normal operation or during cleaning activities. No liquid ignitables were included in the waste (References C029, P008, P012, and U064). 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. This waste stream does not exhibit the characteristic of ignitability (D001), corrosivity (D002), or reactivity (D003).

Ignitability

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

Damp or wet wipes or cloths were allowed to air-dry before placement in the waste canisters (References P008 and P012). To ensure the waste does not exhibit the characteristics 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 exhibit the characteristic of corrosivity as defined in 40 CFR 261.22. Corrosive liquids were not used in the Alpha Box processes. Aqueous liquids were allowed to air-dry or absorbed with Fuller's Earth. RTR was performed to ensure the absence of prohibited items. 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) (References C029, P008, and U064)

Reactivity

The waste does not exhibit the characteristic of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The materials do not contain cyanides or sulfides.

The waste contains some zircaloy swarf, from the processing of spent fuel assemblies, which has been evaluated for reactivity. The test results showed that particles smaller than those included in the waste were not reactive (References C014, C030, C032, C033, P021, and U016). 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 stream does not exhibit the characteristic of reactivity (D003).

Toxicity Characteristic

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

A Toxicity Characteristic Leachate Procedure (TCLP) was performed on the fuel-bearing region of a naval reactor core and zircaloy core structural material (which contains chromium) (Reference C031). The TCLP results for selenium (D010) and chromium (D007) were above the regulatory threshold (Reference C031). Therefore, EPA HWNs D007 (chromium) and D010 (selenium) are applied to this waste stream. The TCLP on the naval reactor fuel also indicated to presence of arsenic (D004), barium (D005), cadmium (D006), lead (D008) and silver (D011). Although that test indicated levels below regulatory limits for that sample, the codes for arsenic (D004), barium (D005), cadmium (D006), lead (D008) and silver (D011) were conservatively applied to the waste in the absence of any other confirmatory test results on the waste stream.

The AK sources did not identify the use of any organic toxicity characteristic compounds. Therefore, no EPA HWNs for organic toxicity characteristic compounds were assigned to waste stream IN-ID-NRF-153 (Reference DR001).

Listed Waste

F-Listed Waste

Waste stream IN-ID-NRF-153 contains or is mixed with F-listed hazardous waste from non-specific sources listed in 40 CFR 261.31.

One F002-listed solvent (1,1,1-trichloroethane) was used in the Alpha Box clean-up.

Although one F001-listed solvent was identified in the AK record (i.e., 1,1,1-trichloroethane), the EPA has provided a regulatory clarification that the F001 listing is only appropriate when the listed solvents are used in a "large-scale" degreasing operation, such as cold cleaning or vapor degreasing on an industrial scale (Reference 12). Since 1,1,1-trichloroethane was not used as a degreasing agent F001 is not assigned to this stream.

F003 listed solvents, such as acetone, were used in the processes that generated this waste stream. F003 constituents are listed solely because these solvents are ignitable in the liquid form. The waste stream is not liquid and therefore, does not exhibit the characteristic of ignitability (Reference 12). Consequently, F003 is not assigned.

Waste stream IN-ID-NRF-153 is assigned EPA HWN F002 for 1,1,1-trichloroethane (Reference DR001).

U, K, and P-Listed Chemicals

The material in waste stream IN-ID-NRF-153 does not contain nor is it mixed with a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof as specified in 40 CFR 261.33. Review of the AK record did not identify any U- or K-listed chemicals. No specific source for beryllium powder (P015) or hydrofluoric acid (U134) was identified for this waste stream. Waste stream IN-ID-NRF-153 is, therefore, not assigned a P- or U-listed HWN.

The material in waste stream IN-ID-NRF-153 is not a hazardous waste from any of the sources specified in 40 CFR 261.32. Waste stream IN-ID-NRF-153 is, therefore, not assigned a K-listed HWN.

Headspace Gas/Volatile Organic Compound Information

Headspace gas sampling was performed on 10 randomly selected containers in this waste stream. No new EPA HWNs were assigned as a consequence of headspace gas sampling and analysis. No UCL_{90} values for target analytes exceeded respective target analyte Program Required Quantification Limits.

Two TICs (2-methyl-1-propanol and 1, 4-dioxane) were detected in the headspace gas analysis for lot 1 but were not found in greater than 25 % of the containers in this lot. Therefore, the analysis verifies the acceptable knowledge for this waste stream. The specifics of this information are included in the attached Characterization Information Summary report.

Conclusion

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

Polychlorinated Biphenyls

This waste stream is not regulated under the Toxic Substances Control Act (TSCA) as defined in 40 CFR 761. Based on a review of the container documentation, polychlorinated biphenyl (PCB) containing waste was not identified (capacitors, ballasts, etc.). NRF waste management practices required identification, segregation, and special management of suspect PCB

containing materials (e.g., ballast, capacitors, and transformers). The absence of un-authorized PCBs in this waste stream is verified during the generation and packaging of this waste.

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and confirmation activities. Review of historical AK sources is performed to verify the absence of prohibited items. The following items have been determined as not present in the waste:

- Liquids
- Non-radioactive pyrophoric materials
- 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
- Non-mixed hazardous wastes
- 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 RTR:

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

Justification for the Selection of RTR

Containers in this waste stream were characterized using RTR. RTR of waste IN-ID-NRF-153 was the appropriate method for characterizing this waste stream because the data quality objectives for RTR were achieved. The waste was previously packaged and VE was not the preferred option as prohibited items were not encountered and remediation was not necessary.

Waste Material Parameters (WMP) Weight Estimates

The WMPs for waste stream IN-ID-NRF-153 were estimated based on the descriptions of waste identified during the RTR prescreens performed in August 2007. WMP weights were estimated for each canister in each drum pre-screened, and an average was determined for the waste stream. The results of the assessment are presented in Table 2, Waste Stream IN-ID-NRF-153 Waste Material Parameter Estimates. The evaluation of data for the WMP weights for waste stream IN-ID-NRF-153 is documented in a memorandum as required by CCP-TP-005, *Acceptable Knowledge Documentation*.

Table 2. Waste Stream IN-ID-NRF-153 Waste Material Parameters

Waste Material Parameter	Weight Percent	Weight Percentage Range
Iron-based Metals/Alloys	1.2%	0% - 3.5%
Aluminum-based Metals/Alloys	0.1%	0% - 1.0%
Other Metals	0.1%	0% - 1.0%
Other Inorganic Materials	1.5%	0% - 8.0%
Cellulosics	16.8%	0% - 90.0%
Rubber	0.1%	0% - 1.0%
Plastics (waste materials)	80.2%	9% - 100%
Inorganic Matrix	0.0%	0% - 0%
Organic Matrix	0.0%	0% - 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 its chemical constituents have been reviewed for consistency with the listed TRUCON code and they are consistent.

Beryllium

The level of beryllium contamination in individual drums will not be present in amounts greater than one weight percent.

Radionuclide Information

The 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 alpha-emitting TRU isotopes with half lives greater than 20 years. The bulk of the activity (greater than 90 percent) is due to fission product activities.

The 10 WIPP tracked radionuclides are presented in Table 3 in addition to other radionuclides that, in aggregate, constitute 95% of the total radiological hazard.

Table 3 – Radionuclides Expected in Waste Stream IN-ID-NRF-153

WIPP Tracked Radionuclides	Additional Reported Radionuclides
Am-241	Ba-137m
Cs-137	Pu-241
Pu-238	Y-90
Pu-239	Others comprising <3% (Th-228, U232 & U235) may be present.
Pu-240	
Pu-242	
Sr-90	
U-233	
U-234	
U-238	

Payload management will not be applied to this waste stream.

Attachment 1, AK Source Documents – Supplemental Documentation

Source Document Number	AK #	Title	Document Number	Author	Date
C001	NA	Naval Reactors' Summary Comments Regarding Projected Inventory of NR Waste Disposed at the RWMC	IBO-02/029	T.M. Bradley	2/14/2002
C002	NA	Correspondence to Phil Hamric (DOE-ID) and Stan Ahrends (DOE-OR) from Goetz K. Oertel, Re: Disposal of TRU Waste from Naval Reactors Facilities.	DP-122	Goetz K. Oertel	11/15/1983
C003	NA	Letter to Phil Hamric (DOE-ID) from C. K. Gaddis Re: Certification of Transuranic Waste at the Idaho National Engineering Laboratory	NA	C. K. Gaddis	7/27/1987
C004	NA	Letter to M. DiBattista from J. Roros Re: Remote-Handled (RH) Transuranic (TRU) Acceptance Knowledge (AK) Collection - Request for NRF Action	IBO-07/084	J. Roros	9/6/2007
C005	NA	Letter to M. DiBattista from J. Roros Re: Remote-Handled Transuranic Waste Acceptance Knowledge Collection - Request for NRF Action.	IBO-07/107	J. Roros	11/15/2007
C007	S2	Letter to P.W. Eselgroth from H.F. Daugherty, Re: Information to Support Previous Request, Attachment Annex 10-1, Sequence Chart for Measurement Recording and Shipment of Transuranic Waste	NRFE-O-5878	H.F. Daugherty	1/9/1979
C008	NA	Letter to G.B.Bregg from J. E. Schmucher, Re: ECF Transuranic Waste Shipments To The INEL Radioactive Waste Management Complex (RWMC).	NRFE-TS-2421	J.E. Schmucker	9/27/1979
C009	NA	Letter to Mr. D.J. Miller from G.D. Carpenter, Re: Transuranic Curie Content of Enriched Uranium Fuels TWR No. 09865 pp. 93-100	WAPD-MT(IP)-552	G.D. Carpenter	10/12/1978
C010	S11	Letter to T.H. Alff, Re: Transuranic Curie Content of Partially Enriched Uranium Oxide Fuels	WAPD-MT(IP)-1069	R.L. Underwood	12/18/1979
C011	S2	Interview of N. Spackman and S. Lunt, RE: Flow Diagram For Alpha Box Operations	NA	James Luginbyhl	3/20/2008
C012	S2	Letter to D.R. Hyster from W. F. Irvine, Re: Request For Fuel Shipment Approval.	NRFE-0-6679	W.F. Irvine	3/2/1981

Source Document Number	AK #	Title	Document Number	Author	Date
C014	S9	Letter to Jeff W. Frazier from Timothy L. Cox, Vicente Munne, and Michael S. Wilkie, Re: DOT Hazard Categorization of Zircaloy Swarf	B-NRF(E)-073	T. L. Cox, V. Munne, and M. S. Wilkie	9/12/2007
C016	NA	Memorandum to Harker/Wade: Re: Alpha Box Waste Material Identification	NA	J.F. Ruggiero	10/12/1976
C017	NA	Letter to Mr. J.A. Hanny from E. L. Juell, Re: NRF Transuranic Waste Shipments to ILTSF	NRFE-EE-6755	E.L. Juell	10/29/1976
C022	NA	Letter to C.H. Price, Re: Documentation of Measurement Methods For Accountable Nuclear Material Content of Transuranic Waste	NRFE-EE-7565	ECF Examination Engineering	7/6/1978
C029	S7	Interview of J.F. Ruggiero, RE: History of NRF Combustible TRU Waste	NA	James Luginbyhl	1/22/2008
C030	NA	Telephone Conference with ECF Examination Engineering on Combustible Transuranic Waste From The ECF Hot Cell Alpha Box	NRFE-EE-7906T	J.F. Ruggiero	1/21/1982
C031	S9	Correspondence to Mr. Joe Nagel, Re: TCLP Testing	NR-RAG	Richard A. Guida	1/5/1994
C032	NA	Correspondence to File, Re: Incidental Material Accumulation in the Expended Core Facility (ECF) Water Pits	NRFREC-EE-163	K.L. Shifty	3/22/2006
C033	NA	Correspondence to Jeff W. Frasier, Re: method for the passivation of the zirconium swarf in the ECF water pits.	B-NRF(E)-015	NRF East Engineering	5/16/2006
C036	NA	Correspondence to Mr. Jim Ruggiero, Re: Packaging Material for Intermediate Gamma Level TRU	NA	W.D. Jackson	6/22/1976
DR001	NA	Attachment 11, Acceptable Knowledge Source Document Discrepancy Resolution (Hazardous Waste Numbers)	DR001	James Luginbyhl	5/15/2008
P007`	S2	Alpha Box Support Operations	NRF 1661.22	NA	3/1/1983
P008	S2	Alpha Box Operations and Maintenance	NRF1661.22	NA	2/7/1986
P010	S2	Alpha Box Support Operations	NRF 1661.22	NA	10/1/1984

Source Document Number	AK #	Title	Document Number	Author	Date
P011	S2	NRF Procedure 1201.4, Section 10-Nuclear Material Measurements And Analysis	NRF 1201.4 Rev. 11	NA	2/1/1982
P012	S2	Alpha Box Operations and Maintenance	NRF1661.22 Rev. 12	NA	5/20/1994
P015	S4	Management of Alpha Box Waste	NRF1661.22	NA	3/1/1982
P017	S10	MSDS for Neolube and Graphite in Isopropanol	NA	NA	8/10/2005
P018	S5	Canister Remediation Prioritization	TRR-ECF(FP291)FP01036-TR1	B.F. Kammenzind	12/12/2003
P019	S1, S5	Attachment B: Description of Naval Spent Nuclear Fuel Receipt and Handling at the Expended Core Facility at the Idaho National Engineering Laboratory	WAPD-OT(E)-107	NA	NA
P021	NA	Internal Technical Report Waste Characterization for INEL Remote-Handled/Special-Case Stored Transuranic Wastes	WM-PD-85-014	Dennis A. Peterson	11/1/1985
P022	S4, S6	Radiological Properties of Remote-Handled Transuranic Waste Inventory at the Radioactive Waste Management Complex	EDF-4687	Cecilia R. Hoffman	5/20/2005
P023	S3	Baseline Estimate of the Volume of Remote-Handled Transuranic Waste Stored at the Radioactive Waste Management Complex	EDF-4379	Cecilia R. Hoffman	3/16/2005
P028	S4	Email From Raj Bhatt, Re: Fast Scan Report Discrepancies	NA	Bhatt, Raj	7/18/2007
P029	S6	ILTSF Drum Retrieval Completion Report	ICP/EXT-05-00886	Fairfield Service Group	1/2006
P030	S5, S8, S9	RH TRU Drum Side Punch Hydrogen Diffusion Pathway Analysis	EDF-8546	David Nickelson	2/28/2008
U002	S2, S4	ECF Route Card on Resin Column Beads and Fuel Chips Disposal	30729	J.F. Ruggiero	1/18/1980
U004	S4	NRF Radioactive Waste Forms and Material Transfer Forms 11-19-78 through 3-1-79	NA	NA	NA

Source Document Number	AK #	Title	Document Number	Author	Date
U005	S4, S9	NRF Radioactive Waste Forms and Material Transfer Forms 01-01-79 through 12-31-79	NA	NA	NA
U007	S4	NRF Radioactive Waste Forms and Material Transfer Forms 01-01-77 through 12-31-77	NA	NA	NA
U013	S4	NRF Onsite Radioactive Material Shipping Record	NA	NA	NA
U015	S2	General Procedures for the Expended Core Facility Nuclear Material Balance Area	NRF1202, WP/169 Rev. 5	NA	8/1/1984
U016	NA	Pyrophoricity and Ignitability of SPC Contents	NA	NA	NA
U017	S2	ECF Route Card-Load and Ship Combustible Trans-U Waste	RC30020	NA	3/5/1979
U022	S2	ECF Route Card-Dispose Alpha Box Waste	32195	J.F. Ruggiero	8/8/1986
U023	S2	ECF Route Card-Alpha Box Waste Disposal (Poly Canisters-EC-51 thru EC-60)	32836	NA	11/8/1988
U026	S2	ECF Route Card-Packaging Transuranic Combustible Waste for Disposal as Low Level, Not Retrievable	31518	W.L. Grant	3/11/1983
U027	S4, S9, S11	Alpha Box Log Volume I	NA	NA	3/1/1976
U028	S4, S9, S11	Alpha Box Log Volume 2	NA	NA	3/26/1985
U029	S2	ECF Route Card: Transfer Combustible Trans-U Waste From Storage Vault To Hot Cell	29876	J.F. Ruggiero	11/11/1978
U030	S2	ECF Route Card: Unload Trans-U Waste Storage Vault-TR-U-Poly-7 (November 1976)	29447	J.F. Ruggiero	2/3/1978
U031	S2	ECF Route Card-Combustible Transuranic Waste-Storage Vault Loading	29039	J.F. Ruggiero	7/15/1977
U032	S2	ECF Route Card-Load and Ship Trans-Uranic Waste 30-Gallon Drums	29333	J.F. Ruggiero	12/19/1977

Sampler Document Number	Ak #	Title	Document Number	Author	Date
U035	S2	ECF Route Card-Trans-U Waste Radiation Attenuation Measurement	29337	J.F. Ruggiero	12/14/1977
U036	S2	ECF Route Card-Trans-U Vault Move	29180	J.F. Ruggiero	10/10/1977
U039	S2	Route Card For Element Sectioning	30670	R.K. Hines	NA
U040	S2	ECF Route Card-RAC No. 14 Alpha Box Fuel Recovery Operations	21381	T.F. Cook	9/1/1976
U041	S2	Route Card For Element Sectioning	32830	M.D. Olsen	NA
U042	S2	Route Card For Element Sectioning	32829	M.D. Olsen	NA
U044	S2	Route Card For Element Sectioning	32494	S.H. Lunt	NA
U045	S2	Route Card For Element Sectioning	32832	M.D. Olsen	NA
U046	S2	Route Card For Element Sectioning	30438	R.P. Reagan	NA
U047	S2	Route Card For Element Sectioning	30678	R.K. Hines	NA
U048	S2	Route Card For Element Sectioning	30680	R.K. Hines	NA
U049	S2	Route Card For Element Sectioning	30702	R.K. Hines	NA
U050	S2	Route Card For Element Sectioning	31004	R.K. Hines	NA
U051	S2	Route Card For Element Sectioning	31280	R.K. Hines	NA
U052	S2	Route Card For Element Sectioning	31281	R.K. Hines	NA
U053	S2	Route Card For Element Sectioning	31277	R.K. Hines	NA
U054	S2	Route Card For Subassembly Preparation	31282	J.A. Dokas	NA
U055	S2	Route Card For Element Sectioning	31339	R.K. Hines	NA
U056	S2	Route Card For Element Sectioning	31728-A	W.L. Grant	NA
U057	S2	Route Card For Element Sectioning	31917	B.F. Lester	NA
U058	S2	ECF Route Card-Grip II Rod 79-441D Alpha Box Sectioning	21373	Terrence F. Cook	9/10/1976
U059	S3, S8	Evaluation of ECF Transuranic Waste Vault	NA	Applied Mechanics Section EG&G	NA
U060	S7	Results of Plutonium Analysis of Core	NA	NA	NA
U061	S9	Plutonium and Uranium Content Per Drum Number	NA	NA	NA
U064	NA	RH Waste Characterization Questionnaire	NA	NA	NA

Source Document Number	AK #	Title	Document Number	Author	Date
U065	S7	Table B, Page B-1: Packaged Waste: Average Void Volume Percent	NA	NA	NA
U068	S8, S10	Various Material Safety Data Sheets-Chlorothene NU P/N 6997-0001, T Grade Marking Pen Ink, T-Grade Pigment Type Marking Pen Ink (AEC)	14537	NA	NA

Alphanumeric Designations

C Correspondence
DR Discrepancy Resolution
P Procedures
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
NA Not a supplemental source document, but cited in the AK Summation