ENTERED

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

OCT 1 2 2011

OCT 2011

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

Subject: Review of Idaho National Laboratory – Central Characterization Project Waste Stream Profile Form Number, ID-NRD.1

Dear Mr. Kieling:

The Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number ID-NRD.1, *Contact Handled Transuranic Debris from Nuclear Radiation Development,* for the Central Characterization Project at the Idaho National Laboratory.

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

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

Sincerely,

Edward Ziemianski
Interim Manager

Enclosure

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

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

CBFO:NTP:JRS:MAG:11-1773:UFC 5900.00

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Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: ID-NRD.1						
(2) Generator site name: Idaho National Laboratory					(4)Technical contact: Jim Vernon	
(3) Generator site EPA ID: ID4890008952					(6) Technical contact phone number: (575) 234-7141	
(5) Date of audit report approval by New Mexico Environment Department (NMED): September 19, 2005; June 29, 2006; August 6, 2007; September 22, 2008; September 11, 2009; October 20, 2010						
(7) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 20, June 16, 2011; CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 26, July 14, 2011; CCP-PO-024, CCP/INL Interface Document, Revision 11 July 18, 2011; CCP-AK-INL-023, Central Characterization Project Acceptable Knowledge Summary Report for Idaho National Laboratory NRD Mixed Heterogeneous Debris Waste Stream: ID-NRD.1, Revision 1, September 30, 2011						
(8) Did your facility generate this waste? YES		NO	X			
(9) If no, provide the name and EPA ID of the original generator: Nuclear Radiation Development, Inc. EPA ID - NYD074034745						
Waste Stream Information						
(10) WIPP ID: ND-T001					(11) Summary Category Group: S5000	
(12) Waste Matrix Code Group: Heterogeneous Debris Waste					(13) Waste Stream Name: Contact Handled Transuranic Debris Waste from Nuclear Radiation Development	
(14) Description from the TWBIR: AmO2 Bagout – Material generated from the production of ionization sources containing Am-241. Material consists mainly of consumable items used in the production glovebox (e.g. tissues paper towels, graphite blocks) but also includes equipment and tools that have exceeded their useful life. Most material is contained in one gallon cans that are placed into 55-gallon drums. Silver Bagout – Material is mainly a vitrified slag that is created during the recovery of precious metals from scrap Am-241 foil. Also contained are items used in the glovebox during the recovery process (e.g., plastic bags, Carbon/Graphite crucibles, paper towels, induction furnaces).						
(15) Defense TRU Waste:	YES	X	NO			
(16) Check One:	CH	X	RH			
(17) Number of SWBs NA	(18) Number of Drums 87 55-gallon drums				(19) Number of Canisters NA	
(20) Batch Data Report numbers supporting this waste stream characterization: See Characterization Information Summary for correlation of containers identification numbers to batch data report numbers.						
(21) List applicable EPA Hazardous Waste Numbers:[1] D008, D011, F002 and F005						
(22) Applicable TRUCON Content Numbers: SQ 125/225						
(23)**Acceptable Knowledge Information**						
(For the following, enter the supporting documentation used [i.e., references and dates])						
Required Program Information						
(23A) Map of site: CCP-AK-INL-023, Revision 1, September 30, 2011, Figures 1, 4 and 5						
(23B) Facility mission description: CCP-AK-INL-023, Revision 1, September 30, 2011, Section 4.3						
(23C) Description of operations that generate waste: CCP-AK-INL-023, Revision 1, September 30, 2011, Section 4.7						
(23D) Waste identification/categorization schemes: CCP-AK-INL-023, Revision 1, September 30, 2011, Section 4.6.3						
(23E) Types and quantities of waste generated: CCP-AK-INL-023, Revision 1, September 30, 2011, Section 4.6.1						

(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-INL-023, Revision 1, September 30, 2011,Section 4.6.2			
(24) Waste certification procedures: CCP-TP-030, Revision 29, April 26, 2011			
(25)Required Waste Stream Information			
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-INL-023, Revision 1, September 30, 2011, Section 5.1			
(25B) Waste stream volume and time period of generation: CCP-AK-INL-023, Revision 1, September 30, 2011, Section 5.2			
(25C) Waste generating process description for each building: CCP-AK-INL-023, Revision 1, September 30, 2011, Section 4.7 and 5.3			
(25D) Waste Process flow diagrams: CCP-AK-INL-023, Revision 1, September 30, 2011, Figure 3			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-INL-023, Revision 1, September 30, 2011, Section 5.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See table entitled "Waste Stream NRD.1 Waste Material Parameter Estimates" of the Summation of Aspects of AK Summary report: Waste Stream ID-NRD.1			
(26) Which Defense Activity generated the waste[2]: (check one)			
	Weapons activities including defense inertial confinement fusion		Naval Reactors development
	Verification and control technology		Defense research and development
	Defense nuclear waste and material by products management	X	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 P001, P002, P003, P004 and P005 in Summation of Aspects of AK Summary Report: Waste Stream ID-NRD.1, Source Documents			
(27C) Safety Analysis Reports: NA			
(27D) Waste packaging logs: See M008 in Summation of Aspects of AK Summary Report: Waste Stream ID-NRD.1, Source Documents			
(28E) Test plans/research project reports: NA			
(27F) Site databases: See M001 in Summation of Aspects of AK Summary Report: Waste Stream ID-NRD.1, Source Documents			
(27G) Information from site personnel: See C002, C003, C004, C006, C007, C009, C010, C012, C014, C015 and D002 in Summation of Aspects of AK Summary Report: Waste Stream ID-NRD.1, Source Documents			
(27H) Standard industry documents: NA			
(27I) Previous analytical data: See M010, C001 and C012 in Summation of Aspects of AK Summary Report: Waste Stream ID-NRD.1, Source Documents			
(27J) Material safety data sheets: See M002 in Summation of Aspects of AK Summary Report: Waste Stream ID-NRD.1, Source Documents			
(27K) Sampling and analysis data from comparable/surrogate Waste: See M001 in Summation of Aspects of AK Summary Report: Waste Stream ID-NRD.1, Source Documents			
(27L) Laboratory notebooks: NA			
Confirmation Information[2]			
For the following, when applicable, enter procedure title(s), number(s) and date(s)			
(28)	Radiography: CCP-TP-053, Revision 11, July 20, 2011		
(29)	Visual Examination: NA		

(30) Comments: For a list of the waste characterization procedures used and date of respective procedures see the list of procedures on the attached CIS.

Reviewed by AK Expert:	**YES** [X]		**Date:** 9/1/2011
Reviewed by STR (if necessary):	**YES** [X]	**N/A** [ ]	**Date:** 9/12/2011

Waste Stream Profile Form Certification:

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

(31)	(32) Jim Vernon	(33) 10-4-11
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) If, radiography, visual examination were used to confirm EPA Hazardous Waste Numbers, attach signed Characterization Information Summary documenting this determination.
(2) This waste was also generated by the following defense activity: Defense nuclear waste and materials by-products management.

CHARACTERIZATION INFORMATION SUMMARY

WSPF # ID-NRD.1

Lot 1

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CCP Characterization Information Summary Cover Page

Waste Stream #	ID-NRD.1	Lot #:	1
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Jim Vernon	Date:	9/22/2011

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

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

List of procedures used:

Real-Time Radiography (RTR):

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

Non Destructive Assay (NDA):

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

Headspace Gas Analysis:

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

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev. 19	12/29/10	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev. 23	12/29/10	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-003	Rev. 18	12/29/10	CCP Data Analysis for S3000, S4000, and S5000 Characterization
CCP-TP-005	Rev. 23	06/30/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 22	04/21/11	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 21	12/29/10	CCP Acceptable Knowledge Documentation
CCP-TP-030	Rev. 29	04/26/11	CCP CH TRU Waste Certification and WWIS/WDS Data Entry

WAP Certification:

CCP-PO-001	Rev. 20	06/16/11	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 19	12/29/10	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-002	Rev. 26	07/14/11	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/10	CCP Transuranic Waste Certification Plan

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # ID-NRD.1 Lot # 1

Container ID Number	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes	Headspace Gas BDR				GGT BDR
							Sample	Analysis			
ND1003R	INNDAS110117	INRTR5110085	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A
ND1004R	INNDAS110115	INRTR5110084	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A
ND1018R	INNDAS110113	INRTR5110083	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A
ND1028R	INNDAS110119	INRTR5110086	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A
ND1033R	INNDAS110117	INRTR5110085	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A
ND1061R	INNDAS110113	INRTR5110083	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A
ND1062R	INNDAS110117	INRTR5110085	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A
ND1072R	INNDAS110112	INRTR5110081	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A
ND1075R	INNDAS110120	INRTR5110087	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A
ND1077R	INNDAS110120	INRTR5110087	N/A	N/A	N/A	N/A	INHSG1108	ECL11030G	ECL11030M	N/A	N/A

Signature of Site Project Manager

Jim Vernon
Printed Name

9/22/2011
Date

155-002

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: ID-NRD.1 **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL [1]	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Acetone	SQRT	9	10	7.0000	2.6847	1.9607	3.5422	100	10.0000		
Benzene	SQRT	5	10	0.6633	0.3167	0.2127	0.4097	10	3.1623		
Bromoform	Log	0	10	-3.0159	-4.6651	0.6691	-4.3724	10	2.3026		
Butanol	Log	5	10	0.1823	-2.3485	1.4034	-1.7348	100	4.6052		
Carbon Disulfide[a]	Log	10	10	-0.0726	-1.9244	1.2355	-1.3841	10	2.3026		
Carbon Tetrachloride	Log	6	10	-1.3093	-2.6050	0.6920	-2.3024	10	2.3026		
Chlorobenzene	Log	0	10	-2.2073	-3.8606	0.6733	-3.5661	10	2.3026		
Chloroform	Log	0	10	-1.8018	-3.4663	0.6746	-3.1713	10	2.3026		
Chloromethane[a]	Log	5	10	1.0647	-1.9268	1.7027	-1.1821	10	2.3026		
Cyclohexane[a]	Log	0	10	-1.6348	-3.2947	0.6747	-2.9997	10	2.3026		
1,1-Dichloroethane	Log	1	10	1.0296	-2.4055	1.3715	-1.8056	10	2.3026		
1,2-Dichloroethane	Log	0	10	-1.6607	-3.3131	0.6750	-3.0179	10	2.3026		
1,1-Dichloroethylene	Log	0	10	-2.1203	-3.7647	0.6700	-3.4717	10	2.3026		
trans-1,2-Dichloroethylene	Log	0	10	-1.8643	-3.5275	0.6753	-3.2322	10	2.3026		
1,2-Dichloropropane[a]	Log	0	10	-1.7720	-3.4244	0.6778	-3.1279	10	2.3026		
Ethyl benzene	Log	2	10	-0.0408	-3.0910	1.3480	-2.5014	10	2.3026		
Ethyl Ether	Log	0	10	-1.1552	-2.8057	0.6760	-2.5101	100	2.3026		
Methanol	Log	0	10	2.7081	2.6565	0.0245	2.6672	100	4.6052		
Methyl Ethyl Ketone	Log	8	10	4.3820	-0.1984	2.6872	0.9769	100	4.6052		
Methyl Isobutyl Ketone	Log	1	10	-1.3093	-2.9611	0.6686	-2.6687	100	4.6052		
Methylene Chloride	Log	1	10	-1.9310	-3.4855	0.7721	-3.1478	10	2.3026		
1,1,2,2-Tetrachloroethane	Log	0	10	-2.4079	-4.0537	0.6700	-3.7607	10	2.3026		
Tetrachloroethylene	Log	1	10	-1.1394	-3.8601	1.0160	-3.4158	10	2.3026		
Toluene	Log	1	10	-1.0498	-2.5625	0.7225	-2.2465	10	2.3026		
1,1,1-Trichloroethane	Log	8	10	2.5649	-2.0424	2.2145	-1.0739	10	2.3026		
Trichoroethylene	Log	3	10	-0.1625	-3.0761	1.3358	-2.4919	10	2.3026		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	6	10	-2.5903	-3.6571	0.4149	-3.4757	10	2.3026		

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: ID-NRD.1 **Waste Stream Lot Number** 1 through 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples above MDL (1)	# Samples	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
1,3,5-Trimethylbenzene[a]	Log	0	10	-2.0402	-3.6972	0.6727	-3.4030	10	2.3026		
1,2,4-Trimethylbenzene[a]	Log	0	10	-2.1628	-3.7957	0.6657	-3.5046	10	2.3026		
m/p-Xylene[b]	Log	2	10	0.5306	-3.0557	1.5636	-2.3719	10	2.3026		
o-Xylene	Log	2	10	-0.9676	-3.2545	1.0700	-2.7866	10	2.3026		

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

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

Comments:

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

Signature of Site Project Manager

Jim Vernon
Printed Name

9/22/2011
Date

SAO-052

CC[illegible]leadspace Gas Summary D[illegible]a

Waste Stream Number ID-NRD.1 Lot Number (s) 1 through 1

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

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

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

SPM Signature [signature] Date 9/22/2011

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: ID-NRD.1 Lot #: 1

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

a. See Batch Data Reports

b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Justification for the selection of RTR and/or VE: RTR was selected as the characterization method for this lot because the waste containers were previously packaged and RTR is an acceptable characterization method to meet all the Data Quality Objectives for NDE of waste stream ID-NRD.1.

Site Project Manager Signature	Jim Vernon	9/22/2011
	Printed Name	Date

CCP Reconciliation with Data Quality Objectives

WSPF# ID-NRD.1 Lot # 1

Sampling Completeness

RTR/VE

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

Percent Complete: 100 (QAO is 100%)

NDA

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

Percent Complete: 100 (QAO is 100%)

HSG

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

Percent Complete: 100 (QAO is ≥90%)

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

Percent Complete: 100 (QAO is ≥90%)

Total VOC

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

Percent Complete: NA (QAO is ≥90%)

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

Percent Complete: NA (QAO is ≥90%)

Total SVOC

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

Percent Complete: NA (QAO is ≥90%)

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

Percent Complete: NA (QAO is ≥90%)

Total Metals

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

Percent Complete: NA (QAO is ≥90%)

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

Percent Complete: NA (QAO is ≥90%)

CCP Reconciliation with Data Quality Objectives

WSPF# ID-NRD.1 Lot # 1

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

CCP Reconciliation with Data Quality Objectives

WSPF# ID-NRD.1 Lot # 1

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

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

Comments:

None

Signature of Site Project Manager | Jim Vernon (Printed Name) | 9/22/2011 (Date)

ES-010

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: ID-NRD.1

Overview:

Since 1969, the americium line at NRD, located in Grand Island, New York, has produced alpha foils using Am-241 supplied by Los Alamos National Laboratory (LANL) and Oak Ridge National Laboratory (ORNL) (References C002, M012, and P005). Waste generated during production was disposed of at Hanford until 1979. The waste then remained in storage on site at NRD with the first container dated 1981. Americium was purchased from DOE (LANL and ORNL) throughout the production history (Reference M012). The waste described in this report was generated during the manufacture of Am-241 alpha foil source products. It consists of glovebox debris generated by the production of alpha foils, the recovery of precious metals, associated maintenance operations, and re-packaging operations. The waste was generated between 1981 and 2010. The current waste stream was repackaged on site at NRD in 2010. This CH TRU waste has been shipped to the Advanced Mixed Waste Treatment Project (AMWTP) located at the Idaho National Laboratory (INL). The waste will be stored and characterized at the Radioactive Waste Management Complex (RWMC) Transuranic Storage Area (TSA) at INL.

TRU waste generated at NRD meets the definition of defense waste in the areas of defense nuclear materials production and defense nuclear waste and materials by-products management. The NRD products were used in both defense and civilian applications.

NRD produced Am-241 foils that are used in a number of applications including smoke detectors, chemical agent detectors, explosive material detectors, and other industrial and research applications. For example, Am-241 foils were purchased by Sandia National Laboratory for use in the "MicroHound" explosives detector that was used in defense applications. Sandia purchased sources from 1974 through the present. Sources were purchased by LANL in 1978 and 2001. Smoke detectors were purchased by the Knolls Atomic Power Laboratory, after the operational life of the unit, returned to NRD. Knolls performs research and development activities in support of naval reactors development (References C013, D002, M011 and M012).

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number ID-NRD.1. The primary source of information for this Summation is CCP-AK-INL-023, Central Characterization Project Acceptable Knowledge Summary Report For Idaho National Laboratory NRD Mixed Heterogeneous Debris, Waste Stream: ID-NRD.1, Revision 1, September 30, 2011.

Waste Stream Identification Summary:

Waste Stream Name:	CH Transuranic Debris Waste from NRD
Waste Stream Number:	ID-NRD.01

Waste Stream Volume, Current:	87 55-gallon drums
Waste Stream Volume, Projected:	None
Generation Dates:	1981 – 2010
Summary Category Group:	S5000
Waste Matrix Code Group:	Heterogeneous Debris Waste
Waste Matrix Code:	S5400, Heterogeneous Debris
TRUPACT-II Content Code (TRUCON):	SQ 125/225
Annual Transuranic Waste Inventory Report Identification Number:	ND-T001

Waste Stream Description and Physical Form:

The waste was generated during the manufacture of Am-241 alpha foil source products. It consists of glovebox debris generated by the production of alpha foils, the recovery of precious metals, associated maintenance operations, and repackaging operations.

Based on the CCP evaluation of the debris, waste stream ID-NRD.1 is waste materials that have common physical form, that contain similar hazardous constituents, (similar radiological properties for Waste Acceptance Criteria [WAC] compliance), and are generated from a single process or activity. The process is defined as manufacture of americium foil sources and precious metal recovery from the waste generated by that process. The materials are similar in that they are debris which was used in or around the americium line.

The following example materials are expected based on the original waste repackaging described by NRD personnel:

- **Metal** items including hand tools; steel cans; pipe nipples, small laboratory equipment; motors and pumps (vacuum pump); furnaces; machine tools; gloveboxes; ventilation ductwork; pipes; and HEPA filter frames.
- **Other Metal** items including brass storage cans; lead shielding; and lead pigs.
- **Other inorganic material** waste consists of ceramic boats, glass lab ware, vials, bottles, windows, slag (silica sand), salt, graphite, crucibles, Transite (asbestos pad), desiccant trap-sack, carbon blocks, and solidified glass containing Am-241.
- **Cellulosic** waste consists of paper (tissue, chemwipes), wood (wooden tool handles, shipping bracing), cardboard, laboratory coats, coveralls, booties, HEPA filter frames, and HEPA filter media.
- **Rubber** waste consists of rubber gloves, vinyl (surgical) gloves, tape, gaskets, stoppers, and leaded neoprene glovebox gloves.

- **Plastic** waste consists of Tygon tubing, tape, Teflon tape, plastic bags, plastic vials, polystyrene (Styrofoam), aprons, and Plexiglas.
- **Organic Matrix,** none expected.
- **Inorganic Matrix,** none expected.
- **Soils/Gravel,** trace amounts are expected.

Point of Generation: NRD, LLC, Grand Island, New York

Area and/or Building of Generation: Americium Line and Repackaging Glovebox

Generating Processes:

Description of Waste Generating Processes

At NRD, there is a glovebox line where debris waste is generated; and a stand-alone glovebox where solidified, molten glass containing Am-241 is separated from the gold and silver being reclaimed. The following description is an overview of the glovebox line processing operations. Wastes are generated from the production of alpha foils and associated glove box operations. The process is divided into several steps:

Am-241 Incoming Inventory (Procedure LAB0001)

Am-241 is removed in lots from its original shipping container. From each lot, a specified amount of Am-241 is ground and added to gold powder. The combination of gold and Am-241 is mixed and allowed to dry. This operation is performed both manually, using the boron-nitride mortar and pestle, and mechanically with a mixer mill (References P002, P003 and P004).

Am-241 Compact Fabrication – Direct (Procedure LAB0006)

After mixing, the mixture is brought to the glove box and transferred to the die set, where the mixture is leveled and the die set is closed. The die set is put under pressure using a hydraulic press to solidify the gold and Am-241 into a compact. The compact is placed in a furnace and sintered. After sintering, the compact is removed from the furnace, weighed and measured for thickness to determine how much Am-241 was lost in the compaction process. The percentage of Am-241 lost for each compaction process is the difference in weight in the sintered compact and the original weight of the gold and Am-241 before the compact was sintered. This percentage is multiplied by the original activity of the Am-241 to determine the millicurie (mCi) lost in the compaction process. This activity in mCi is also the amount attributed to the accumulated prime input into the bagged-out waste that is reported for each drum.

The compact is then over-coated with gold foil. The gold foil is attached to the compact by a heating process using a furnace then attached to the compact using a hydraulic press. The compact is then trimmed and cleaned. The compact is weighed and measured; and distributed to gloveboxes (References P002 and P004).

Rolling of Compact (Procedure LAB0011)

The compact is moved to Box 4. The trimmed and clean compact (20 mm by 72 mm) is placed in the muffle furnace in Box 4. Once the muffle furnace is fully heated, the compact is removed from the muffle furnace and placed in the rolling mill for two passes, then returned to the furnace and reheated. This process is repeated until the compact reaches the approximate length of 160 mm.

The compact is removed to Box 5 where it is cleaned with PG111 (identified in the NRD procedures as trichloroethylene; however, it is likely 1,1,1-trichloroethane, see DR001), and trimmed. Until 1996, methyl ethyl ketone (MEK) was used to clean the compact (References P002, P003, P004, and DR001). The compact is cut into three equal pieces and transferred to Box 7. The three equal pieces of the compact are stacked on top of each other, sandwiched between carbon blocks, heated in the Lapel furnace, and pressed into one laminated compact using the hydraulic press. This lamination process is repeated four times in order to ensure a more uniform distribution of Am-241 and to obliterate the overcoat. After the fourth lamination, the compact gets rolled out to 162 mm, transferred back to Box 5 to be trimmed, cleaned, and measured to determine the amount of activity that remains in the compact. Then, the lamination is cut into two equal pieces. Both the final compact and the waste scrap generated are weighed and the resulting activity is calculated for both (Reference P004).

Cut First Weld Fabrication (Procedure LAB0016)

Each of the two equal pieces of lamination are combined in a silver and gold lamination, which is heated in Box 7 and pressed in the hydraulic press to form a single "first weld" assembly (a "first weld" means that this is the first time that the compact is combined with silver. Up to this point, the compact has only included gold and Am-241).

The first weld assembly is removed from Box 7 through the pass out hall. The first weld assembly is wrapped in wet paper towels as it comes out of Box 7 to prevent airborne contamination. The assembly is submerged in a sink of water and cleaned with a hand-held Scotchbrite scrubpad. The cleaned assembly is dried with paper towels. After drying, the dimensions of the compact are scribed on all four sides and taken to the manual cutter for trimming. The scrap from the first weld assembly is placed in a plastic bag and labeled with the lot number of the associated first weld assembly and labeled "First Weld Scrap." The trimmed assembly is delivered to the roller (hydraulic rolling mill), and rolled in accordance with the rolling instruction in procedure LAB0021, *Second Weld Fabrication* (Reference P004).

After rolling, the assembly is delivered to the glovebox technician, where it is radiographed to verify Am-241 uniformity and proper assembly production. Next, depending on calculations and customer requirements, the first weld assembly is cut to the appropriate dimensions. Once again, the scrap from the cutting of the first rolled weld assembly is collected in a plastic bag labeled with the lot number of the associated first weld assembly (i.e. "Lot XXX First Weld Scrap").

are not to be present in the waste or added to containers during packaging. The material in this waste stream is therefore not corrosive waste (References C002, M002, P001, P002, P003, P004 and P005).

The debris material in the waste stream does not meet the definition of reactivity 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, nor generate toxic gases, vapors, or fumes when mixed with water. No potential exists for the waste to contain cyanides or sulfides. As a result, the materials within this waste stream are not considered reactive and the D003 HWN was not applied (References C002, M002, P001, P002, P003, P004 and P005).

The containers in this waste stream will be evaluated in accordance with the WIPP WAP using radiography prior to shipment to ensure the waste is not ignitable, reactive, or corrosive.

Toxicity Characteristic

Based on review of AK relative to chemicals used or present in the gloveboxes and supporting operations, waste stream ID-NRD.1 is contaminated with toxicity characteristic compounds as defined in 40 CFR 261.24. Where a constituent has been identified and there is no quantitative data available to demonstrate that the concentration of a constituent is below regulatory threshold levels, the applicable EPA HWN is applied to the waste.

Debris waste from the glovebox operations contains or is contaminated with toxicity characteristic metal compounds listed in 40 CFR 261 such as lead shielding. Silver is used as a component in the alpha foils. Analysis of non-americium containing waste show that silver was present below the regulatory limit; however, because the sample is not fully representative of this waste and because there is no other information regarding silver contamination in the waste, D011 is applied to this waste stream. Based on AK, EPA HWNs D008 and D011 are assigned to waste stream ID-NRD.1 (References C001, C002, C004, C011, C012, P001, P002, P003 and P004).

The AK sources identified the use of organic toxicity characteristic compounds; however, because the more specific F-listed HWNs were applied, no assignment of the corresponding toxicity characteristic HWNs are assigned.

In April 2005, NRD collected a sample of molten scrap that did not contain Am-241 for Toxicity Characteristic Leaching Procedure (TCLP) analysis. The results of this analysis demonstrates that the molten scrap is less than the regulatory limits for arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury. While this sample was not taken from americium-containing waste from this waste stream, it demonstrates that the vitrified material in this waste stream does not contain or leach significant amounts of these RCRA hazardous constituents (Reference C001).

F-Listed Waste

Based on review of AK relative to chemicals currently and historically used or present in the processes, waste stream ID-NRD.1 contains or is mixed with F-listed hazardous wastes from non-specific sources listed in 40 CFR 261.31.

F002 and F005-listed solvents were used in the processes. An F003 constituent, acetone, was identified in the AK record. It is listed solely because it is ignitable in the liquid form. The waste stream does not exhibit the characteristic of ignitability because it is not liquid; therefore, F003 is not assigned.

Although F001-listed solvents were identified in the AK record (i.e., 1,1,1-trichloroethane and trichloroethylene), 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. Large-scale degreasing operations were not conducted in the americium line; therefore EPA HWN F001 is not assigned to the waste stream.

Waste stream ID-NRD.1 is assigned F-listed EPA HWN F002 for 1,1,1-trichloroethane and trichloroethylene; and HWN F005 for methyl ethyl ketone (used prior to 1986) (References C002 and P002). Trichloroethylene was identified as a chemical used in the production procedures; however it is not clear if it was used or if 1,1,1-trichloro-ethane was used. Because both chemicals are F002 compounds, both will be identified as potential contaminants in this waste stream (Reference DR001).

U, K, P-Listed Chemicals

Waste materials from operations from NRD were determined not to be discarded commercial chemical products, an off-specification commercial chemical product, or a container residue or spill residue thereof as defined in 40 CFR 261.33. Review of the AK record did not identify any specific source or incident where the decontamination waste is mixed with or contaminated with discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue.

Beryllium was not identified for this waste stream in the AK record, therefore P015 is not applied.

Hydrofluoric acid was not used at NRD, therefore U134 is not applied.

P- and U-listed reagents including acetone (U002), MEK (U159), and trichloroethylene (U228) were managed by NRD; however, no pure product or unused chemicals were placed into the TRU waste stream (Reference P005).

The material in waste stream ID-NRD.1 is not a hazardous waste from any of the sources specified in 40 CFR 261.32. Waste stream ID-NRD.1 is therefore not assigned a K-listed HWN.

Other Waste Streams generated From the Same Buildings and Processes

LA-OS-00-03, "Defense Sealed Sources Not in POCs," is a sealed source waste stream collected and disposed of as part of the LANL OFF-Site Source Recovery Project. The sources were produced at NRD and subsequently returned to NRD (Reference M013).

Polychlorinated Biphenyls

No source of polychlorinated biphenyls (PCBs) has been identified in the AK record. No PCBs were introduced into the TRU waste stream, based on a review of documentation in procedures as well as interviews with waste generators (References C002, C004, P001, P002, P003, P004 and P005).

Oil, primarily vacuum pump oil, is sometimes added to the waste. There is no indication the oil contains PCBs.

Based on a review of the operating procedures, waste management practices, and personnel interviews, materials potentially containing PCBs were not specifically identified. Therefore, waste stream ID-NRD.1 is not regulated as a Toxic Substances Control Act (TSCA) waste under 40 CFR Part 761.

Prohibited Items

Based on the review of the procedure for handling and packaging TRU waste, as well as container packaging records, there should be no prohibited items included in the ID-NRD.1 waste stream (Reference P005).

During repackaging, several small cans of absorbed salt bath liquids from a silver nitrate solution were found to be corroding their containers. NRD removed all of these containers from the waste stream (References C015 and DR002).

CCP will perform RTR on this waste stream to ensure the absence of prohibited items in the containers prior to shipment to WIPP.

Method for Determining Waste Material Parameters (WMPs) Weights Per Unit of Waste

Waste material parameter estimates are available for the 87 repackaged containers. Waste Stream ID-NRD.1 Waste Material Parameter Estimates, is an estimate of the weight percent of each parameter for the entire waste stream as determined by CCP after repackaging (References M008 and M009).

The average weight percent was determined by averaging the values for each of the waste material parameters. The range values reflect the minimum and maximum found for those parameters. Based on these estimates, the relative estimated weight percentages for organic waste materials (primarily organic debris), and inorganic waste

materials (primarily inorganic debris), for waste stream ID-NRD.1 are 22 percent and 78 percent, respectively. Any individual container could contain a wide range of any of the WMPs; however, no individual container in this waste stream will contain more than 50 percent homogeneous waste materials. The results of the assessment are presented below. The evaluation of data for the WMP weights for the waste stream is documented in a memorandum as required by CCP-TP-005 (Reference M009).

Waste Stream ID-NRD.1 Waste Material Parameter Estimates

WMP Description	Average Weight Percent	Weight Percent Range
Iron-based Metals/Alloys	45.22%	13.16% - 81.08%
Aluminum-based Metals/Alloys	0.04%	0 - 5.34%
Other Metals	0.36%	0 - 8.22%
Other Inorganic Materials	19.04%	0 - 64.40%
Cellulosics	8.23%	0 - 73.68%
Rubber	10.89%	0 - 49.43%
Plastics (waste materials)	2.93%	0 - 18.58%
Organic Matrix	<0.1%	0 - <0.01%
Inorganic Matrix	13.13%	0 - 40.49%
Soils/gravel	0.16%	0 - 21.28%
TOTAL ORGANIC	22.21%	
TOTAL INORGANIC	77.79%	

List of AK Sufficiency Determinations

None.

Transportation

This waste stream meets the requirements for TRUCON codes SQ 125/225.

Beryllium

See above discussion on U, K, and P-Listed chemicals

Radionuclide Information

Table "Estimated Radionuclide Distribution in ID-NRD.1," is a list of the estimated radionuclide distribution in waste stream ID-NRD.1 based on assay data for the 87 drums in this waste stream. Radionuclide data established by the waste generator on a container basis was evaluated to determine the relative radionuclide weight and activity

for waste stream ID-NRD.1. From this evaluation, the two predominant isotopes for the waste stream are Am-241 and Np-237 and Am-241 accounts for over 99 percent of the total activity in the waste stream (Reference M010).

Estimated Radionuclide Distribution in ID-NRD.1

Radionuclide	Number of Containers with Reported Radionuclide	Total Radionuclide Weight%[1]	Total Radionuclide Curie%[2]	Radionuclide Weight% Range for Individual Drums[3]	Radionuclide Curie% Range for Individual Drums[4]	Expected Present
WIPP Required Radionuclides						
Am-241	87	92.82%	99.82%	20.9 - 100.00%	82.1 - 100%	Yes
Pu-238	Not Reported	N/A	N/A	N/A N/A	N/A N/A	No
Pu-239	Not Reported	N/A	N/A	N/A N/A	N/A N/A	No
Pu-240	Not Reported	N/A	N/A	N/A N/A	N/A N/A	No
Pu-242	Not Reported	N/A	N/A	N/A N/A	N/A N/A	No
U-233	Not Reported	N/A	N/A	N/A N/A	N/A N/A	No
U-234	Not Reported	N/A	N/A	N/A N/A	N/A N/A	No
U-238	Not Reported	N/A	N/A	N/A N/A	N/A N/A	No
Sr-90	22	5.18E-7%	2.21E-5%	0 - 1.07E-5%	0 - 4.7E-4%	Yes
Cs-137	22	8.12E-7%	2.21E-5%	0 - 1.68E-5%	0 - 4.7E-4%	Yes
Additional Radionuclides						
Am-243	1	2.80%	0.18%	0 - 78.1%	0 - 17.9%	Yes
Np-237	87	4.36%	9.63E-4%	0 - 6.23%	0 - 1.37E-3%	Yes
Eu-154	1	8.79E-9%	7.27E-7%	0 - 1.98E-6%	0 - 1.60E-4%	Yes
Al-26	23	4.40E-3%	2.61E-5%	0 - 1.11E-2%	0 - 6.45E-5%	Yes
Pu-241	Not Reported	N/A	N/A	N/A N/A	N/A N/A	No
U-235	Not Reported	N/A	N/A	N/A N/A	N/A N/A	No

1. This listing indicates the total weight percent of each radionuclide over the entire waste stream.
2. This listing indicates the total activity (curie) percent of each radionuclide over the entire waste stream.
3. This listing is the weight percent range of each radionuclide on a drum-by-drum basis.
4. This listing is the curie percent range of each radionuclide on a drum-by-drum basis.

Payload management is not being considered for this waste stream.

AK Source Documents

Source Document Number	Title	Document Number	Author	Date
C001	Radiochemistry & Environmental Work Order: 135489	N/A	General Engineering Laboratories, LLC	May 26, 2005
C002	Process Description (Abbreviated)	N/A	W. G. Estill	December 5, 2006
C003	Waste Packaging	N/A	W. G. Estill	December 5, 2006
C004	Waste Packaging Procedure/HEPA Filters	N/A	W. G. Estill	December 6, 2006
C005	Waste Containers	N/A	W. G. Estill, Randy Fitzgerald	December 5, 2006
C006	Silver Recovery	N/A	Randy Fitzgerald, W. G. Estill	December 6, 2006
C007	Contents of Iron Pipe Containers	N/A	W. G. Estill	December 12, 2006
C009	Waste Material Parameters (estimated)	N/A	N/A	N/A
C011	NRD Preliminary Shipping Categories/Decay Heat Limits	N/A	Jennifer Biedscheid	January 17, 2007
C012	Gold and Silver Analytical Results; HEPA sizes	N/A	D. Davis	February 21, 2007
C013	NRD Source purchase orders and NRC reports	N/A	Mark Doherty	August 5, 2008
C014	Interview with Kent Pfeifer	N/A	Mark Doherty	August 5, 2008
C015	Interview with Doug Davis	N/A	Mark Doherty	February 3, . 2011
D001	Transuranic Waste Defense Determination Approval Forms	N/A	Joel Grimm, NNSA	February 17, 2006
D002	Transuranic Waste Defense Determination Approval	N/A	Mark Doherty	August 12, 2008
DR001	PG111	N/A	Mark Doherty	September 15, 2010
DR002	Communication regarding corroding cans of absorbed salt bath	N/A	Mark Doherty	February 3, 2011
M001	Two Spreadsheets - Glovebox Bagout data and Silver Recovery Bagout data	N/A	Unknown (information sent by Julia Whitworth)	November 16, 2006
M002	Material Safety Data Sheet for Radiac Wash	N/A	Biodex Medical Systems, Inc.	February 7, 2000
M003	NRD, Inc. Location Maps and Floor Plan	N/A	N/A	December 6, 2006
M004	NRD Your Source For Alpha Foils	N/A	NRD LLC	N/A
M005	Isotopics for purchased Am-241	N/A	Gregg Potter, ORNL	August 31, 1984

Source Document Number	Title	Document Number	Author	Date
M006	Trichloroethylene	N/A	Wikipedia Definition	February 2007
M007	Waste Material Parameters	N/A	Mark Doherty	April 26, 2011
M008	Waste Packaging Records for NRD	N/A	N/A	November 24, 2010
M009	Revised Waste Material Parameters	N/A	Mark Doherty	May 16, 2011
M010	NRD NDA Batch Data Reports	N/A	N/A	February 21, 2011
M011	Sealed Source and Device Registry	N/A	N/A	N/A
M012	Source Material Shipping Papers	N/A	N/A	Various
M013	LA-OS-00-03 WWIS Radionuclide Activity Data Query	N/A	N/A	September 29, 2011
P001	Preparation of Anodes for Recovery Bath, Am-241	N/A	NRD, LLC	3/1/05
P002	General Laboratory Manufacturing Manual (NRD, Inc. Procedures, Proprietary)	N/A	Eugene Olesky, Health Physicist, NRD, Inc.	April 23, 1984
P003	241Am Foil Fabrication Procedures (Proprietary)	N/A	N/A	1992
P004	NRD Inc. Manufacturing and Assembly Procedures for Radioactive Sources (Proprietary)	N/A	N/A	June 1996
P005	NRD TRU Waste Packaging Procedures	HP-2010-0001, Rev. 0	D. Davis	February 24, 2010