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

April 24, 2002

Mr. Steve Zappe
Hazardous Waste Permits Program
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2905 E. Rodeo Park Drive, Bldg. 1
Santa Fe, NM 87505

RE: Transmittal of Approved Waste Stream Profile Form for Idaho National Environmental & Engineering Laboratory, Waste Stream Profile Form Number INW222.001

Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office (CBFO) has approved the Idaho National Environmental & Engineering Laboratory (INEEL), Waste Stream Profile Form INW222.001. Enclosed is a copy of the approved form as required by Section B-4(b)(1) of the WIPP Hazardous Waste Facility Permit No. NM4890139088-TSDF.

If you have any questions on this matter, please contact me at (505) 234-7357 or (505) 361-0265.

Sincerely,

Kerry W. Watson
CBFO Assistant Manager
Office of National TRU Program

Enclosure

cc: w/o enclosure
J. Kieling, NMED
C. Walker, TechLaw
J. Cotton, WTS
M. Gerle, WTS
S. Calvert, CTAC
CBFO Mailroom

020422

CBFO:NTP:KWW:VW:02-2257:UFC:5822

WIPP WASTE STREAM PROFILE FORM

Waste Stream Profile Number: INW222. 001

Generator site name: INEEL | Technical contact: Dr. Kenneth Gilbert

Generator site EPA ID: ID4890008952 | Technical contact phone number: (208) 526-8039

Date of audit report approval by NMED: July 17, 2000

Title, version number, and date of documents used for WAP certification: See continuation sheet 1 – Heading: WAP Certification

Did your facility generate this waste? ☐Yes ☒No If no, provide the name and EPA ID of the original generator:

Rocky Flats Environmental Technology Site, CO7890010526

Waste Stream Information[1]

WIPP ID: IN-W222 | Summary Category Group: S3000

Waste Matrix Code Group: S3150 | Waste Stream Name: Miscellaneous Cemented Sludge

Description from the WTWBIR: See Continuation Sheet 1 - Heading: Waste Description

Defense TRU Waste: ☒Yes ☐No Check One: ☒CH ☐RH

Number of SWBs 0 | Number of Drums 496 | Number of Canisters 0

Data report numbers supporting this waste stream characterization: See Characterization Information Summary, Table 6

List applicable EPA Hazardous Waste Codes:[2] D004-D011, D022, F001, F002, F003, F005, F006, F007 and F009

Applicable TRUCON Content Codes: ID111B, ID211B

Acceptable Knowledge Information[1]

[For the following, enter the supporting documentation used (i.e., references and dates)]

Required Program Information

- Map of site: Acceptable Knowledge Document for INEEL Stored Transuranic Waste – Rocky Flats Plant Waste, January 1998, INEL-96/0280, Rev. 2, Figure 3-1; Drawing 175603 (BBWXT), Rev. 7.
- Facility mission description: INEL-96/0280, Rev. 2, Section 3.1; PLN-579, Rev. 2
- Description of operations that generate waste: INEL-96/0280, Rev. 2, Section 3.2.2
- Waste identification/categorization schemes: INEL-96/0280, Rev. 2, Section 3.3.2
- Types and quantities of waste generated: INEL-96/0280, Rev. 2, Section 3.5, Sections 5-26; Inventory report from Transuranic Reporting, Inventory, and Processing System (TRIPS)
- Correlation of waste streams generated from the same building and process, as appropriate: INEL-96/0280, Rev. 2, Section 3.2, Sections 5-26
- Waste certification procedures: PLN-579, Rev. 2, Appendix A. Certification Compliance Methods Implementation Matrix

Required Waste Stream Information

- Area(s) and building(s) from which the waste stream was generated: INEL-96/0280, Rev. 2, Section 14.0; Waste Stream Summary Sheet – Incinerator Waste, EDF-2722
- Waste stream volume and time period of generation: INEL-96/0280, Rev. 2, Table 14-1; Approximately 95 m^3, Generated 5/80 to 3/20/87
- Waste generating process description for each building: INEL-96/0280, Rev. 2, Section 14.1
- Process flow diagrams: N/A
- Material inputs or other information identifying chemical/radionuclide content & physical form: INEL-96/0280, Rev. 2, Section 14.0; Waste Stream Summary Sheet – Miscellaneous Cemented Sludges, EDF-2722; Backlog Waste Reassessment Baseline Book, PADC-1995-01045, Section Waste Form 1, October 09, 2001.
- Which Defense Activity generated the waste: (check one) G.E. Dials, "Identification of Defense Waste Streams Generated at Rocky Flats Environmental Technology Site (RFETS)," U. S. Department of Energy, memorandum to Jessie M. Robertson and John M. Wilcynski, May 20, 1997.

☒	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	☐	Defense nuclear material production
☐	Defense nuclear waste and materials security and safeguards and security investigations		

WIPP WASTE STREAM PROFILE FORM

Supplemental Documentation INEL 96/0280, Rev. 2 encompasses several different reference sources. Many of the references used for the development of INEL 96/0280, Rev.2. fall into the supplemental documentation category. INEL 96/0280, Rev 2. contains a complete roadmap to supplemental reference sources.

- Process design documents: INEL 96/0280, Rev. 2
- Standard operating procedures: INEL 96/0280, Rev. 2
- Safety Analysis Reports: N/A
- Waste packaging logs: INEL 96/0280, Rev. 2
- Test plans/research project reports: INEL 96/0280, Rev. 2
- Site databases: N/A
- Information from site personnel: INEL 96/0280, Rev. 2
- Standard industry documents: INEL 96/0280, Rev. 2
- Previous analytical data: INEL 96/0280, Rev. 2
- Material safety data sheets: N/A
- Sampling and analysis data from comparable/surrogate Waste: N/A
- Laboratory notebooks: N/A

Sampling and Analysis Information[2]

For the following, when applicable, enter procedure title(s), number(s) and date(s))

Radiography: RWMC Technical Procedure (TPR)-1572, Operating the Real-Time Radioscopic (RTR) System (Rev. 43)

Visual Examination: HFEF-OI-6890, Waste Characterization, Rev. 4e, 10/.23/00

Headspace Gas Analysis

VOCs: ACMM-9930, GC/MS MFC for VOCs in Gas, Rev. 6, ACMM-9910, Analysis of Gas Samples for VOCs by GC/FID, Rev. 4, ACLP-4.10, Determination of Method Detection Limits for Gas Analysis, Rev. 2; ACLP-4.45, Gas Transfer Manifold Systems and Sample Compositing, Rev. 3

Flammable: ACMM-9925, Analysis of Gas Samples for Hydrogen and Methane by Micro GC/TCD, Rev. 0

Other gases (specify): N/A

Homogeneous Solids/Soils/Gravel Sample Analysis[3]

Total metals: ACMM-8909, Microwave Assisted Digestion of Homogeneous Solids and Soil/Gravel, Rev. 0 and 1; ACMM-2900, Determination of Trace Elements by ICP Atomic Emission Spectrometry, Rev. 2 & 3; ACMM-7802, Determination of Mercury by Cold Vapor Fluorescence Spectrophotometry, Revs. 4 and 5

PCBs: N/A

VOCs: ACMM-9261, Determination of Total Volatile Organic Compounds in Homogeneous Solids and Soil/Gravel by Gas Chromatography/Mass Spectrometry, Revs 2 & 3.

Nonhalogenated VOCs: ACMM-9441, Determination of Nonhalogenated Volatile Organics by GC/Flame Ionization Detection, Revs. 1, and 2.

Semi-VOCs: ACMM-9501, Sample Preparation of TRU Waste Characterization Samples for Organic Analysis, Revs. 3 and 4; ACMM-9271, Determination of Semivolatiles in TRU Waste Characterization Samples, Revs. 3, & 4.

Other (specify):

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.

Thomas H. Monk | Thomas H. Monk/Site Project Manager | 4/10/2002

Signature of Site Project Manager | Printed Name and Title | 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 Codes, attach signed Characterization Information Summary documenting this determination.
(3) Because pre-existing data was used for solidified analysis results some procedures are not on the current list of INEEL procedures in the INEEL Certification Authority letter. {Phase II samples were analyzed over a 6 month period and more than one revision of the procedures were used due to the annual review requirements. See Continuation Sheet 1: WAC Certification Documents section for explanation.

WIPP WASTE STREAM PROFILE FORM

Continuation Sheet 1:

WAP Certification Documents:

- Program Plan for Certification of INEEL Contact-Handled Stored Transuranic Waste, PLN-579, Rev. 2, April 26, 2001
- TRUPACT-II Authorized Methods for Payload Compliance (TRAMPAC) Plan, PLN-577, March 14, 2000
- INEEL TRU Waste Characterization, Certification. And Transportation Quality Program Plan, INEEL-PLN-182, Rev. 6, November 18, 2000
- Quality Assurance Project Plan for the Transuranic Waste Characterization Program, PLN-190, Rev. 11, January 31, 2002.

The analytical methods used to analyze the Phase II samples for the miscellaneous cemented sludge core samples were identical to the WAP-compliant methodology approved by Carlsbad. The analytical and preparatory techniques were originally written up as separate methods as presented in the characterization report, INEEL/EXT-02-00112. At the time the WAP was finalized, all preparatory and determinative methods were combined into one Analytical Chemistry Methods Manual (ACMM) method retaining all the TRU Program requirements. For example, VOC requirements for preparation (ACMM 9501) and determination (ACMM 9261) were combined into one method (ACMM 9260). In all cases the methodology did not change. All methods used by the laboratory (both pre- and post-WAP) were qualified through participation in the Resource Conservation Recovery Act (RCRA) Performance Demonstration Program (PDP). In every RCRA PDP cycle, the results for all methods tested were deemed acceptable by CBFO.

Waste Description:

WIPP-ID	Item Description Code (IDC)	Waste Matrix Code (WMC)	Description
IN-W222	292	S3150	This waste consists of sludge generated from the scrubber in the plutonium recovery incinerator in Building 771. The sludge consists of fly ash and diatomite filter media. The sludge's consistency may range from a damp mass with a consistency of paste to a mass that has been dried to some extent or to a solidified monolith (sludge puck). The sludge may contain fines Portland cement was used as an absorbent for liquids in the sludge in some cases and as a solidifying agent in others (containers after October 1985). Miscellaneous items identified in containers of IDC 292 waste are: Ful-Flo filters laden with grease, empty cement bags, unused polyethylene bags, combustibles**, concrete, metals, or plastics.
	807b*	S3150	This waste consists of incinerator sludge (IDC 292) immobilized into a solid monolith with Portland cement (after October 1985). The 807b containers have generation dates from November 1985 to March 1987.

* Beginning in March 1987, IDC 807 was used for Solidified Bypass Sludge from Liquid Waste Treatment in Building 374. This waste is included in the Building 374 Sludge waste stream profile (INW218.001).

** Combustible items that may be present in the IDC 292 drums include but are not restricted to the following items: paper, polyethylene bags, surgical gloves, Ful-Flo filters, and empty cement bags.

WIPP WASTE STREAM PROFILE FORM

Continuation Sheet 2:

Hazardous Determination:

Ignitability:

The material in this waste group does not meet the definition of ignitability as defined in 40 CFR 261.22. RTR and visual examination identified residual liquids in several containers of incinerator sludge (IDC 292), however none of the drums have free liquids in excess of acceptable levels as defined in the WAP. The material is not capable of causing a fire through friction, absorption of moisture, or spontaneous chemical change. The material is not a compressed gas, nor do the drums contain compressed gases as confirmed by RTR and visual inspection. The material is not a DOT oxidizer as defined in 49 CFR 173.127. Although there are constituents listed for their ignitability characteristic identified in the AK, their codes are retained due to the manner in which the solvents entered the waste stream, not for ignitability. These constituents are not in concentrations that would cause the waste to exhibit ignitability. The materials in this group are therefore not ignitable and the D001 code has not been assigned.

Corrosivity:

Under 40 CFR 261.22, a solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

- It is aqueous with a pH less than or equal to 2, or, greater than or equal to 12.5, as determined by a pH meter using Method 9040 in "Test Methods for Evaluating Solid Waste, Physical and Chemical Methods," EPA Publication SW-846.
- It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55 degrees Celsius (130 degrees Fahrenheit) as determined by its test method specified in National Association of Corrosion Engineer (NACE) Standard TM-01-69 as standardized in SW-846.

The Miscellaneous Cemented Sludge waste stream does not meet the characteristic of corrosivity (D002) as defined. The waste is not an aqueous liquid. A knowledge-based determination is allowable when determining whether or not the waste stream is a liquid relative to corrosivity under the Federal Register, 50 FR 18372, dated April 30, 1985. It is stated in the FR "EPA believes that, for purposes of the characteristic of ignitability and corrosivity, it will generally be obvious whether or not the waste is a liquid."

RTR and visual inspection identified residual liquids in several containers of incinerator sludge (IDC 292); however, none of the drums that will be shipped to WIPP will have free liquids in excess of acceptable levels as defined in the WAP. However, pH measurements taken of liquids from IDC 292 drums indicated a pH range of 10.85 to 12. According to the AK documents absorbents were added to waste containers identified with free liquids. Only WAP compliant drums, that is, drums with liquids below the WIPP waste acceptance criteria ceiling (less than or equal to 1 inch of liquid in internal containers and less than or equal to 0.55 gal (2082 ml) total volume in the drum) will be shipped to WIPP. The WAP compliant solid state of the waste is confirmed using radiography and visual examination. The corrosive waste code (D002) is not assigned to this waste stream.

Reactivity:

The materials in the waste group do not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The materials do not contain cyanides or sulfides, and are not capable of detonation or explosive reaction. The materials are not forbidden explosives or Division 1.1, 1.2, or 1.3 (Class A or B) explosives as defined in 49 CFR 173, nor do the drums contain explosive materials. Explosives were not handled or used around radioactive material. The materials in this waste group are therefore not characteristic for reactivity (D003).

WIPP WASTE STREAM PROFILE FORM

Continuation Sheet 3:

Toxicity:

The materials in this waste group meet the definition of toxicity as defined in 40 CFR 261.24. The toxicity characteristic contaminants fall into one of two categories, metals or organics. Plutonium recovery incinerator feed wastes were identified as potentially containing alcohols, glycols, solvents, and metal constituents. According to AK, the wastes exhibits the toxicity characteristic for metals; arsenic (As), barium (Ba), cadmium (Cd), chromium (Cr), lead (Pb), mercury (Hg), selenium (Se), and silver (Ag) and were assigned EPA Hazardous Waste Numbers D004 – D011. Preliminary solids sampling results confirmed the presence of the cadmium, chromium, and lead with UCL_{90}s near or exceeding the RTL. All other metals were detected, but at UCL_{90}s that did not exceed the RTLs. The AK-assigned HWNs will be retained.

Toxicity characteristic organic compounds include halogenated and non-halogenated solvents or other toxic compounds. The plutonium recovery incinerator could have accepted any of the combustible, plastic, or filter wastes that were generated during the time it was operational and feed wastes may have been contaminated with toxicity characteristic organic compounds including tetrachloroethylene, trichloroethylene, carbon tetrachloride, and benzene. The appropriate F-listed codes for the solvents used have been applied to this waste based on AK; therefore, the toxicity characteristic waste codes associated with these compounds were not assigned. Chloroform, although not identified in AK as being generated at the RFP, nor as a component of the incinerator feed waste, was detected in headspace gas samples with a resultant UCL_{90} greater than the PRQL. The toxicity characteristic code (D022) has been assigned to this waste stream.

Listed Waste:

AK assigned F-listed codes, F001 and F002, for the halogenated solvents used for cleaning and degreasing (tetrachloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and 1,1,2-trichloro-1,2,2-trifluoroethane), and methylene chloride used primarily for paint removal. The plutonium recovery incinerator feed wastes, including combustible, plastic, and filter wastes, may have been contaminated with these organic solvents. The waste codes are retained for this profile.

Non-halogenated compounds (acetone, methanol, and xylene) were also identified in the AK as potential F003 listed contaminants on feed wastes (combustible, plastics, and filter waste). These solvents may have been co-mingled with other listed solid wastes at the point of generation. Although the waste addressed by this profile is not ignitable, the F003 code has been retained based on the derived-from rule as a conservative measure.

Benzene, and toluene were also identified in AK as solvents used in laboratory operations. The combustible wastes that fed the plutonium recovery incinerator may have been contaminated with these solvents and the listed waste code (F005) was retained.

Visual examination of some IDC 292 containers identified Ful-Flo filters, empty cement bags, and unused polyethylene bags. These additional miscellaneous waste items comprise less than 10 % of the waste stream. The mixture rule (40 CFR 261.3(a)(2)(iv)) was applied to this waste stream due to the presence of filter media, and the listed waste codes for electroplating wastes (F006, F007, and F009) were added.

Characterization Information Summary Report

Lot Number: **INW222.001**

SQAO Review: T. Preston Date: 04-01-02

SPM Release: T.H. MONK Thomas J. Monk Date: 4/10/2002

SQAO Signature indicates that the information presented in this package is consistent with analytical batch reports.

SPM Release concurrence with all information presented in this report

Reconciliation with Data Quality Objectives

I certify by signature (below) that sufficient data have been collected to determine the following Program-required waste parameters:

Check	Reconciliation Parameter
✓	Waste Matrix Code as reported in WWIS.
✓	Waste Material Parameter Weights for individual containers as reported in WWIS.
✓	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
✓	The TRU activity reported in WWIS demonstrates that the waste is TRU waste and not low-level radioactive waste.
✓	The potential flammability of TRU waste headspace gases.
✓	Mean concentrations, upper 90% confidence limit (UCL_{90}) values for the mean concentration standard deviations, and the number of samples collected for each VOC in the headspace gas of each container were calculated and compared with the program required quantitation limits, as reported in Waste Stream Characterization Summary Table 2, and additional EPA codes were assigned as required.
✓	Mean concentrations, UCL_{90} for the mean concentrations, standard deviations, number of samples collected for metals were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in Waste Stream Characterization Summary Table 3, and EPA codes were assigned as required.
✓	Mean concentrations, UCL_{90} for the mean concentrations, standard deviations, number of samples collected for total VOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in Waste Stream Characterization Summary Table 4, and EPA codes were assigned as required.
✓	Mean concentrations, UCL_{90} for the mean concentrations, standard deviations, number of samples collected for total SVOCs were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in Waste Stream Characterization Summary Table 5, and EPA codes were assigned as required.
✓	Waste stream evaluated to determine if it exhibits toxicity characteristic (TC) under 40 CFR Part 261, Subpart C and TC codes assigned as appropriate.
✓	Sufficient number of samples was taken to meet statistical sampling requirements, as documented on Summary Data Report Table 1.
✓	Only validated data were used in the above calculations, as documented through the site data review and validation forms and process.
✓	Waste containers were selected randomly for sampling, as documented in site procedures.
✓	Sufficient number of waste containers has been visually examined to determine the UCL_{90} for the miscertification rate is less than 14%.
✓	All TICs were appropriately identified and reported in accordance with the requirements of Section B3-1 of the WAP prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
✓	The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
✓	The PRQLs for all analyses were met.

Check (√) indicates that data are sufficient to determine the waste parameters and that the waste parameters have been reported in the listed document or database. NA indicates that parameter not applicable to the waste stream.

Signature of Site Project Manager	Printed Name	Date
Thomas H. Monk	T. H. MONK	4/10/2002

Table 1. Solid sampling summary.

Determination of Number of Containers to Sample (S3000, S4000)
Pre-WAP Data was used to Estimate Mean, Variance, and Coefficient of Variation:
Attach a table(s) that correlates container identification numbers to data packages, if different from containers used for characterization.
Description of Source Data: INEEL/EXT-02-00112
Samples Randomly Selected from Waste Stream (yes/no)? Yes*
Treatment of less-than-detectable measurements: 1/2 detection limit, elevated MDLs not considered in evaluation
Analytes that are listed as spent solvents and therefore are not included in the calculation to determine the number of containers to sample: Benzene, carbon tetrachloride, tetrachloroethylene, trichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloro-1,2,2-trifluoro-ethane, methanol, methylene chloride, toluene, and o, m& p xylenes.
Selected coefficient of variation and associated analyte: N/A
Total Calculated number of containers to sample: 5**
Attach preliminary estimates: Included in the Characterization Report: INEEL/EXT-02-00112
Sampling Results
Samples Randomly Selected from Waste Stream (yes/no)? Yes*
Analytes that are listed as spent solvents and therefore are not included in the calculation of UCL_{90}s to determine the toxicity characteristic: Same as listed above
Largest Coefficient of Variation and associated analyte: N/A
Comparison of largest coefficient of variation with coefficient of variation selected from preliminary estimate: N/A
Treatment of less-than-detectable measurements: 1/2 detection limit, elevated MDLs not considered in evaluation
Transformations applied to data and justification: N/A

*Phase I and Phase II samples were used for sample size determination. Only the Phase II sample data is presented in Tables 3, 4A, and 5A.

**For this waste stream, pre-WAP solids sampling data was used to assign and confirm hazardous waste codes. The data are described in detail in the characterization report, INEEL/EXT-02-00112 Section 1.3. Although the samples were not collected and analyzed under a WAP-approved process, use of the data to characterize the waste is allowed under the provision B2-2 of the WAP. Preliminary Sampling drums are listed in Section 1.3, Table 1-1 of the characterization report. See Table 6 and Table 8 of this report to cross correlate container numbers, barcodes and sample numbers.

Table 2. Headspace gas summary data.

Analyte	Number of samples	Number of samples above MDL[a]	Mean(ppmv)	Standard deviation (ppmv)	Maximum Concen. (ppmv)	Upper 90% confidence limit (ppmv)	PRQL (ppmv)	EPA Code Assigned
1,1,1-Trichloroethane	22	10	3.72	9.24	33.0	7.76	10	F001/F002
1,1,2,2-Tetrachloroethane	22	0	0.049	0.049	0.175	[b]	10	N/A
1,1,2-Trichloro-1,2,2-trifluoroethane	22	2	0.134	0.355	1.60	0.906	10	F001/F002
1,1-Dichloroethane	22	2	0.301	0.949	4.40	2.37	10	N/A
1,1-Dichloroethylene	22	2	0.323	1.16	5.50	2.84	10	N/A
1,2,4-Trimethylbenzene	22	4	0.107	0.199	0.930	0.271	10	N/A
1,2-Dichloroethane	22	0	0.062	0.062	0.220	[b]	10	N/A
1,3,5-Trimethylbenzene	22	2	0.077	0.124	0.520	0.346	10	N/A
Acetone	22	6	1.10	4.02	19.0	3.53	100	F003
Benzene	22	13	0.134	0.286	1.40	0.241	10	F005
Bromoform	22	0	0.025	0.025	0.090	[b]	10	N/A
Butanol	22	1	0.078	0.137	0.660	[b]	100	N/A
Carbon tetrachloride	22	10	3.30	10.4	36.0	7.86	10	F001/F002
Chlorobenzene	22	0	0.039	0.037	0.135	[b]	10	N/A
Chloroform	22	3	2.17	9.57	45.0	12.6	10	D022
Cis-1,2-Dichloroethylene	22	1	0.179	0.501	2.40	[b]	10	N/A
Cyclohexane	22	9	0.304	0.405	1.50	0.493	10	N/A
Ethyl benzene	22	2	0.125	0.264	1.00	0.699	10	N/A
Ethyl ether	22	0	0.144	0.139	0.500	[b]	10	N/A
Methanol	22	1	3.55	7.08	35.0	[b]	100	F003
Methyl ethyl ketone	22	1	0.275	0.688	3.30	[b]	100	N/A
Methyl isobutyl ketone	22	0	0.076	0.075	0.270	[b]	100	N/A
Methylene chloride	22	4	0.740	2.35	11.0	2.66	10	F002
Tetrachloroethylene	22	5	0.113	0.358	1.70	0.359	10	F001/F002
Toluene	22	22	10.7	7.55	32.0	12.8	10	F005
Trichloroethylene	22	4	1.02	3.71	17.0	4.06	10	F001/F002
m&p-Xylene	22	2	0.304	0.613	2.70	1.64	10	F003
o-Xylene	22	2	0.133	0.249	1.10	0.675	10	F003

Did the data verify the Acceptable Knowledge? Yes _____ No √

If no, describe the basis for assigning the EPA Hazardous Waste Codes. D022 added for chloroform. Although chloroform was not identified in AK as being generated at the RFP nor was it identified as a component of the incinerator feed waste, chloroform was detected in headspace gas samples with a resultant UCL_{90} near the PRQL. Because this is a common degradation product of several of the chlorinated solvents identified in this waste, the toxicity characteristic code (D022) has been assigned to this waste stream.

Statistics Performed by: JJ Einerson Date: 3-28-02
Signature

a. When a measurement is reported as below detection, one-half the analysis method detection limit (MDL) is used. Note that the MDL for a given analyte may vary from sample to sample.

b. The mean and standard deviation presented are the mean and standard deviation of the method detection limits (after dividing by 2) since all measurements (or all but one) are below detection. Therefore, there are no degrees of freedom associated with the t statistic and the upper 90% confidence limit cannot be calculated.

Table 2B. Headspace gas summary data – tentatively identified compounds (TICs).

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	N/A	N/A	N/A
Did the Data verify the Acceptable Knowledge	Yes X*	No	
If no, describe the basis for assigning the EPA Hazardous Waste Codes: N/A			

*No TICs listed Appendix VIII, 40 CFR Part 261, were identified in waste constituents in AK or detected in HSG samples.

Table 3. Solid Sample Analysis. Metals summary data. – Not applicable to debris

Analyte	# Samples	# Samples above MDL	SD (mg/kg)	Mean (mg/kg)	Maximum (mg/kg)	UCL_{90} (mg/kg)	RTL (mg/kg)[a]	EPA Code Assigned
Antimony	9	8	31.8	23.8	89	38.8	N/A	N/A
Arsenic	9	9	3.11	9.41	13.0	10.9	100	D004
Barium	9	9	69.5	230	320	262	2000	D005
Beryllium	9	9	1.11	1.39	3.30	1.9	N/A	N/A
Cadmium	9	9	24.4	26.7	86.0	38.1	20	D006
Chromium	9	9	71.9	66.2	250	99.7	100	D007
Lead	9	9	170	165	460	245	100	D008
Mercury	9	3	0.611	0.45	2.00	1.12	4	D009
Nickel	9	9	280	153	890	283	N/A	N/A
Selenium	9	4	1.38	1.95	4.80	3.08	20	D010
Silver	9	4	0.533	0.495	1.70	0.932	100	D011
Thallium	9	4	1.63	1.66	5.70	2.55	N/A	N/A
Vanadium	9	9	76.1	164	230	199	N/A	N/A
Zinc	9	9	463	281	1500	496	N/A	N/A

Did the data verify the Acceptable Knowledge? Yes √ No ____

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

[a]The Regulatory Threshold Limit (RTL) used is the TCLP limit (mg/l) for characteristic constituents multiplied by 20 to calculate the RTL for solid samples in mg/kg.

Statistics Performed by: H Emerson Date: 3-28-02
Signature

Table 4A. Solid Sample Analysis. Total VOC summary data. – Not applicable to debris

Analyte	# Samples	# of Samples above MDL[a]	Mean (mg/kg)	SD (mg/kg)	Maximum (mg/kg)	UCL_{90} (mg/kg)[b]	RTL or PRQL (mg/kg)[c]	EPA Code Assigned
1,1-Dichloroethylene	9	0	0.262	0.241	0.550	[b]	14	N/A
1,2-Dichloroethane	9	0	0.353	0.156	0.550	[b]	10	N/A
1,1,1-Trichloroethane	9	1	0.273	0.231	0.550	[b]	N/A	F001/F002
1,1,2,2-Tetrachloroethane	9	0	0.489	0.053	0.550	[b]	N/A	N/A
1,1,2-Trichloro-1,2,2-trifluoroethane	9	0	0.268	0.235	0.550	[b]	N/A	F001/F002
1,1,2-Trichloroethane	9	0	0.252	0.250	0.550	[b]	N/A	N/A
Acetone	9	0	3.48	6.11	19.8	[b]	N/A	F003
Benzene	9	0	0.268	0.235	0.550	[b]	10	F005
Bromoform	9	0	0.474	0.060	0.550	[b]	N/A	N/A
Butanol	9	0	2.34	4.47	14.3	[b]	N/A	N/A
Carbon disulfide	9	0	0.326	0.181	0.550	[b]	N/A	N/A
Carbon tetrachloride	9	1	0.655	1.20	3.80	[b]	10	F001/F002
Chlorobenzene	9	0	0.268	0.235	0.550	[b]	2000	N/A
Chloroform	9	0	0.262	0.241	0.550	[b]	120	D022[d]
Ethyl benzene	9	0	0.259	0.244	0.550	[b]	N/A	N/A
Ethyl ether	9	0	3.49	6.29	20.3	[b]	N/A	N/A
Isobutanol	9	0	2.00	2.84	9.50	[b]	N/A	N/A
Methanol	9	0	3.84	7.66	24.3	[b]	N/A	F003
Methylene chloride	9	1	0.302	0.206	0.550	[b]	N/A	F002
Methyl ethyl ketone	9	0	3.62	7.18	22.8	[b]	4000	N/A
m-Xylene/p-Xylene	9	0	0.320	0.187	0.550	[b]	N/A	F003
o-Xylene	9	0	0.308	0.198	0.550	[b]	N/A	F003
Pyridine	9	0	2.83	4.66	15.3	[b]	100	N/A
Tetrachloroethylene	9	1	0.521	0.853	2.71	[b]	10	F001/F002
Toluene	9	0	0.280	0.224	0.550	[b]	N/A	F005
Trichloroethylene	9	0	0.274	0.229	0.550	[b]	10	F001/F002
Trichlorofluoromethane	9	0	0.265	0.238	0.550	[b]	N/A	N/A
Vinyl chloride	9	0	0.283	0.221	0.550	[b]	4	N/A

Did the data verify the Acceptable Knowledge? Yes √ No _____

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

Statistics Performed by: _____ Date: 3-28-02
Signature

a. When a measurement is reported as below detection, one-half the analysis method detection limit (MDL) is used. Note that the MDL for a given analyte may vary from sample to sample.

b. The mean and standard deviation presented are the mean and standard deviation of the method detection limits (after dividing by 2) because all measurements (or all but one) are below detection. Therefore, there are no degrees of freedom associated with the t statistic and the upper 90% confidence limit cannot be calculated.

c. For toxicity characteristic constituents, the Regulatory Threshold Limit (RTL) is the TCLP limit (mg/l) multiplied by 20 to calculate the RTL for solid samples in mg/kg. For listed constituents, the Program Required Quantitation Limit (PRQL) is used.

d. The hazardous waste code, D022, was assigned to the waste stream based on HSG results.

Table 4B. Solid Sample Analysis. Total VOC summary data – tentatively identified compounds. VOC compounds detected greater than the PRQL, in 25% of the samples or more and listed in 40 CFR 261 Appendix VIII.

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
None	N/A	N/A	N/A
Did the Data verify the Acceptable Knowledge	Yes N/A*	No	
If no, describe the basis for assigning the EPA Hazardous Waste Codes: N/A			

* No TICs were identified that met both WAP criteria (Appendix VIII and present in >25% of the waste stream to date). AK did not indicate that TICs were expected to be found.

Table 5A. Solid Sample Analysis. Total SVOC summary data. -- Not applicable for debris

ANALYTE	# Samples	# of Samples above MDL[a]	Mean (mg/kg)	SD (mg/kg)	Maximum (mg/kg)	UCL_{90} (mg/kg)[b]	RTL or PRQL (mg/kg)[c]	EPA Code Assigned (D027-38)
1,4-Dichlorobenzene	9	0	1.44	3.96	12.0	[b]	150	N/A
2,4-Dinitrotoluene	8[d]	0	0.110	0	0.110	[b]	2.6	N/A
Cresols	9	0	1.20	3.30	10.0	[b]	4000	N/A
Hexachlorobenzene	8[d]	0	0.100	0	0.100	[b]	2.6	N/A
Hexachloroethane	9	0	1.32	3.63	11.0	[b]	60	N/A
Nitrobenzene	9	0	1.32	3.63	11.0	[b]	40	N/A
Pentachlorophenol	9	0	1.14	3.14	9.50	[b]	2000	N/A
2,4-Dinitrophenol	9	0	1.26	3.47	10.5	[b]	N/A	N/A
Ortho-dichlorobenzene	9	0	1.44	3.96	12.0	[b]	N/A	N/A

Did the data verify the Acceptable Knowledge? Yes √ No _____

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

Statistics Performed by: J J Ennesor Date: 3-28-02
Signature

a. When a measurement is reported as below detection, one-half the analysis method detection limit (MDL) is used. Note that the MDL for a given analyte may vary from sample to sample.

b. The mean and standard deviation presented are the mean and standard deviation of the method detection limit (after dividing by 2) because all measurements (or all but one) are below detection. Therefore, there are no degrees of freedom associated with the t statistic and the upper 90% confidence limit cannot be calculated.

c. For toxicity characteristic constituents, the Regulatory Threshold Limit (RTL) is the TCLP limit (mg/l) multiplied by 20 to calculate the RTL for solid samples in mg/kg. For listed constituents, the Program Required Quantitation Limit (PRQL) is used.

d. If the MDL exceeded the RTL (effecting one data point), that data was not used to calculate the statistical Parameters.

Table 5B. Solid Sample Analysis. Total SVOC Summary data – tentatively identified compounds. VOC compounds detected greater than the PRQL in 25% of the samples or more and listed in 40 CFR 261 Appendix VIII.

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

Did the data verify the Acceptable Knowledge Yes N/A No _____

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

* No TICs were identified that met both WAP criteria (Appendix VIII and present in >25% of the waste stream to date). AK did not indicate that TICs were expected to be found.

Table 6. Correlation of container identification numbers to data package.

Container Number	Barcode	Headspace Gas Data Package[a]	RTR Data Package	RA Data Package	Visual Examination Data Package	Solids Analyses Package[b]	PRF Headspace Gas Sampling Data Package
IDRF000239364	022790	ECL01662M	RTR010353	SAS010582	N/A	N/A	PRF010554
IDRF000242868	015238	ECL01662M	RTR010352	SAS010581	N/A	N/A	PRF010554
IDRF000246222	000461	ECL01661M	RTR010350	SAS010581	N/A	N/A	PRF010553
IDRF001101825	008112	ECL01661M	RTR010257	SAS010276	N/A	N/A	PRF010553
IDRF001101939	008143	ECL01661M	RTR010267	SAS010584	N/A	N/A	PRF010553
IDRF001101972	017302	ECL01659M	RTR010332	SAS010584	N/A	N/A	PRF010553
IDRF001101974	019648	ECL01661M	RTR010353	SAS010584	N/A	N/A	PRF010553
IDRF001102128	005374	ECL01659M	RTR010333	SAS010581	N/A	N/A	PRF010553
IDRF001102143	011801	ECL01662M	RTR010353	SAS010581	N/A	N/A	PRF010554
IDRF001102163	018476	ECL01662M	RTR010353	SAS010581	N/A	N/A	PRF010554
IDRF001102197	018471	ECL01659M	RTR010333	SAS010581	N/A	N/A	PRF010554
IDRF001102251	008252	ECL01662M	RTR010353	SAS010584	N/A	N/A	PRF010554
IDRF001102387	018687	ECL01661M	RTR010333	SAS010272	N/A	N/A	PRF010553
IDRF001102403	018589	ECL01661M	RTR010352	SAS010584	N/A	N/A	PRF010553
IDRF001102413	008102	ECL01661M	RTR010420	SAS010377	N/A	N/A	PRF010553
IDRF001102416	008111	ECL01661M	RTR010420	SAS010366	N/A	N/A	PRF010553
IDRF001102593	008159	ECL01661M	RTR010266	SAS010221	N/A	N/A	PRF010553
IDRF001102595	007938	ECL01662M	RTR010258	SAS010216	N/A	N/A	PRF010554
IDRF001102615	008392	ECL01661M	RTR010416	SAS010378	N/A	N/A	PRF010553
IDRF003201609	018454	ECL01659M	RTR010333	SAS010581	N/A	N/A	PRF010554
IDRF004000064	026901	ECL01662M	RTR010350	SAS010581	N/A	N/A	PRF010554
IDRF007601646	028674	ECL01662M	RTR010333	SAS010581	N/A	N/A	PRF010554
IDRF000242274	010033	N/A	N/A	N/A	N/A	ACL99003	N/A
IDRF001101931	018424	N/A	N/A	N/A	N/A	ACL98012	N/A
IDRF001101932	018935	N/A	N/A	N/A	N/A	ACL99003	N/A
IDRF001102016	019173	N/A	N/A	N/A	N/A	ACL98012	N/A
IDRF001102044	018448	N/A	N/A	N/A	N/A	ACL99003	N/A
IDRF001102111	001340	N/A	N/A	N/A	N/A	ACL99003	N/A
IDRF001102372	018334	N/A	N/A	N/A	N/A	ACL98012	N/A
IDRF001102381	018765	N/A	N/A	N/A	N/A	ACL99003	N/A
IDRF001102614	008226	N/A	N/A	N/A	N/A	ACL98013	N/A

a. Each ECL Gas Data Package is composed of three separate reports. For example, ECL01662 contains ECL01662M, ECL01662G, and ECL016627C.

b. Each ACL Data package is composed of four separate reports. For example, ACL99003 contains ACL99003M, ACL99003N, ACL99003S, and ACL99003V.

Table 7. RTR/VE Summary of Prohibited Items and AK Confirmation

Container Number	Barcode	RTR Prohibited Items[a]	Visual Examination Prohibited Items[a]	AK Confirmation[b]
IDRF000239364	022790	None	N/A	Complete
IDRF000242868	015238	None	N/A	Complete
IDRF000246222	000461	None	N/A	Complete
IDRF001101825	008112	None	N/A	Complete
IDRF001101939	008143	None	N/A	Complete
IDRF001101972	017302	None	N/A	Complete
IDRF001101974	019648	None	N/A	Complete
IDRF001102128	005374	None	N/A	Complete
IDRF001102143	011801	None	N/A	Complete
IDRF001102163	018476	None	N/A	Complete
IDRF001102197	018471	None	N/A	Complete
IDRF001102251	008252	None	N/A	Complete
IDRF001102387	018687	None	N/A	Complete
IDRF001102403	018589	None	N/A	Complete
IDRF001102413	008102	None	N/A	Complete
IDRF001102416	008111	None	N/A	Complete
IDRF001102593	008159	None	N/A	Complete
IDRF001102595	007938	None	N/A	Complete
IDRF001102615	008392	None	N/A	Complete
IDRF003201609	018454	None	N/A	Complete
IDRF004000064	026901	None	N/A	Complete
IDRF007601646	028674	None	N/A	Complete

a. See Table 6 for the associated RTR and Visual examinations. None of the listed drums contains prohibited items as defined by Section B-1c of the Idaho National Engineering & Environmental Laboratory Quality Assurance Project Plan for the Transuranic Waste Characterization Program, PLN-190, Rev 8, 2/6/01.

b. Acceptable Knowledge confirmations are conducted using checklist SPO-RTR-VER-1. This checklist can be accessed through the batch listed in Table 6.

Table 8. Sample identification number cross-correlation table.

Container Number	Headspace Gas Sample Number	Solidified Sample Number(s)
IDRF000239364	ID122101EI653	N/A
IDRF000242868	ID122101EI156	N/A
IDRF000246222	ID122101EI402	N/A
IDRF001101825	ID122101EI313	N/A
IDRF001101939	ID122101EI588	N/A
IDRF001101972	ID122101EI090	N/A
IDRF001101974	ID122101EIC87	N/A
IDRF001102128	ID122101EI650	N/A
IDRF001102143	ID122101EI623	N/A
IDRF001102163	ID122101EI639	N/A
IDRF001102197	ID122101EI626	N/A
IDRF001102251	ID122101EI849	N/A
IDRF001102387	ID122101EI601	N/A
IDRF001102403	ID122101EI930	N/A
IDRF001102413	ID122101EI234	N/A
IDRF001102416	ID122101EIB21	N/A
IDRF001102593	ID122101EI167	N/A
IDRF001102595	ID122101EI574	N/A
IDRF001102615	ID122101EI067	N/A
IDRF003201609	ID122101EI813	N/A
IDRF004000064	ID122101EI649	N/A
IDRF007601646	ID122101EI343	N/A
IDRF000242274	N/A	ID010033101V1, ID010033101V2, ID010033102V1, ID010033102V2, ID01003310CM1B
IDRF001101931	N/A	ID018424101V1, ID018424101V2, ID018424102V1, ID018424102V2, ID01842410CM1
IDRF001101932	N/A	ID018935101V1, ID018935101V2, ID018935102V1, ID018935102V2, ID01893510CM1
IDRF001102016	N/A	ID019173101V1, ID019173101V2, ID019173102V1, ID019173102V2, ID01917310CM1
IDRF001102044	N/A	ID018448101V1, ID018448101V2, ID018448102V1, ID018448102V2, ID01844810CM1
IDRF001102111	N/A	ID001340101V1, ID001340101V2, ID001340102V1, ID001340102V2, ID00134010CM1
IDRF001102372	N/A	ID018334101V1, ID018334101V2, ID018334102V1, ID018334102V2, ID01833410CM1
IDRF001102381	N/A	ID018765101V1, ID018765101V2, ID018765102V1, ID018765102V2, ID01876510CM1
IDRF001102614	N/A	ID008226101V1, ID008226101V2, ID008226102V1, ID008226102V2, ID00822610CM1