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

JUN 09 2004

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NMED Hazardous
Waste Bureau

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

Subject: Transmittal of Approved Waste Stream Profile Form AECHHM by the Central Characterization Project at the Argonne National Laboratory-East

Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office (CBFO) has approved the Waste Stream Profile Form AECHHM submitted by the Central Characterization Project at the Argonne National Laboratory-East.

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) 706-0066.

Sincerely,

for

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

Enclosure

cc: w/o enclosure
J. Kieling, NMED
C. Walker, TechLaw
M. Strum, WTS
R. Chavez, WRES
L. Greene, WRES
S. Calvert, CTAC
WIPP Operating Record
CBFO M&RC

CBFO:NTP:KWW:VW:04-0272:UFC:5822

040613

CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: AECHHM	
(2) Generator site name: ANL-E	(3)Technical contact: Steven Rose
(3) Generator site EPA ID: IL3890008946	(3) Technical contact phone number: 505-234-7591
(4) Date of audit report approval by NMED: June 1, 2004	
(4) Title, version number, and date of documents used for WAP Certification: CCP-PO-001, rev. 6, CCP Transuranic Waste Characterization Quality Assurance Project Plan, June 11, 2003 CCP-PO-002, rev. 7, CCP Transuranic Waste Certification Plan, November 20, 2003 CCP-PO-007, rev. 7, CCP/ANL-E Interface Document, August 21, 2003 CCP-AK-ANLE-001, rev. 10, CCP Acceptable Knowledge Summary Report for Argonne National Laboratory-East Contact-Handled TRU Waste Facility Maintenance and Laboratory Operations, October 3, 2003	
Did your facility generate this waste? Yes ☒ No ☐	(5) If no, provide the name and EPA ID of the original generator: N/A
Waste Stream Information[1]	
(6) WIPP ID: AE-W038	(7) Summary Category Group: S3000
(8) Waste Matrix Code Group: Solidified Inorganics	(9) Waste Stream Name: ANL-E Contact-Handled Homogeneous Mixed
(10) Description from the TWBIR: The final waste form is solidified inorganics (TWBIR # AE-W038)	
(11) Defense TRU Waste: Yes ☒ No ☐	(11) Check One: CH ☒ RH ☐
(11) Number of SWBs 0	(11) Number of Drums 70 (55-gallon drums) + 2 (85-gallon) drums
(11) Number of Canisters 0	
(12) Batch Data report numbers supporting this waste stream characterization: See form CCP-TP-002-A4	
(13) List applicable EPA Hazardous Waste Codes:[2] F001, F002, F003, F004, F005, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D027, D028, D030, D035, D036, D037	
(14) Applicable TRUCON Content Codes: AE 211A	
Acceptable Knowledge Information[1]	
[For the following, enter supporting the documentation used (i.e., references and dates)]	
Required Program Information	
(15) Map of site: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Section 4.1 and figures 1 and 2	
(15) Facility mission description: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Section 4.1.4	
(15) Description of operations that generate waste: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Sections 4.1.2 and 4.3	
(15) Waste identification/categorization schemes: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Section 4.4	
(15) Types and quantities of waste generated: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Section 4.2.1 and Table 3	
(15) Correlation of waste streams generated from the same building and process, as appropriate: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Section 4.2.2 and Table 2	
(15) Waste certification procedures: CCP-TP-001, rev. 10, CCP Project Level Data Validation and Verification, August 28, 2003 CCP-TP-002, rev. 13, CCP Reconciliation of DQOs and Reporting Characterization Data, June 27, 2003 CCP-TP-003, rev. 14, CCP Sampling Design and Data Analysis for RCRA Characterization, September 3, 2003 CCP-TP-005, rev. 13, CCP Acceptable Knowledge Documentation, November 18, 2003 CCP-TP-030, rev. 9, CCP WWIS Data Entry and TRU Waste Certification, September 19, 2003	
Required Waste Stream Information	
(16) Area(s) and building(s) from which the waste stream was generated: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Section 5.2.1	

AECHHM Page 1

CCP Waste Stream Profile Form

(16) Waste stream volume and time period of generation: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Section 5.2.2	
(16) Waste generating process description for each building: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Section 5.2.3	
(16) Process flow diagrams: None Compiled	
(16) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-ANLE-001, rev. 10, October 3, 2003, Section 5.2.4	
(16) Which Defense Activity generated the waste: (check one)	
☐ Weapons activities including defense inertial confinement fusion	☐ Naval Rectors 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	
Supplemental Documentation	
(17) Process design documents: (See Attachment 1 for ANL-E AK Source Document titles) AE-I-027	
(17) Standard operating procedures: AE-I-001, AE-I-003 -- AE-I-006, AE-I-009, AE-I-018 -- AE-I-025, AE-I-028, AE-I-030, AE-I-034 -- AE-I-037, AE-I-041 -- AE-I-043, AE-I-045, AE-I-046, AE-I-053, AE-I-057 -- AE-I-069, AE-I-071 -- AE-I-075, AE-I-078, AE-I-080, AE-I-082 -- AE-I-084, AE-I-086 -- AE-I-093, AE-I-094, AE-I-095, AE-I-097, AE-I-098 -- AE-I-107, AE-I-109 -- AE-I-112 -- AE-I-114 -- AE-I-118, AE-I-120 -- AE-I-138, AE-I-140 -- AE-I-142 -- AE-I-154, AE-I-156, AE-I-160, AE-I-194, AE-P-011 -- AE-P-013, AE-P-016 -- AE-P-018, AE-P-019, AE-P-095, AE-P-097 -- AE-P-103, AE-P-105, AE-P-114	
(17) Safety Analysis Reports: AE-I-050, AE-P-044, AE-P-045, AE-P-106	
(17) Waste packaging logs: AE-I-079, AE-I-081	
(17) Test plans/research project reports: AE-D-010, AE-I-008, AE-I-055, AE-I-060, AE-I-165, AE-I-167, AE-I-181 -- AE-I-187, AE-P-058 -- AE-P067	
(17) Site databases: AE-P-001, AE-P-069	
(17) Information from site personnel: AE-C-003, AE-C-004, AE-C-006, AE-C-013, AE-C-019, AE-C-020, AE-C-022 -- AE-C-024, AE-C-027 -- AE-C-029, AE-C-031 -- AE-C-039, AE-C-041, AE-I-002, AE-I-012, AE-I-029	
(17) Standard industry documents: None compiled	
(17) Previous analytical data: None compiled	
(17) Material safety data sheets: AE-C-022, AE-I-052, AE-I-154, AE-P-068	
(17) Sampling and analysis data from comparable/surrogate Waste: None compiled	
(17) Laboratory notebooks: AE-I-015	
Sampling and Analysis Information[2]	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
	(18) Radiography: CCP-TP-045, rev. 6, CCP RTR #5 Radiography Inspection Operating Procedure, January 31, 2003
	(18) Visual Examination: CCP-TP-013, rev. 13, CCP Waste Visual Examination and Repackaging, May 30, 2003
	Headspace Gas Analysis
	(19) VOCs: CCP-TP-031, rev. 12, CCP Headspace Gas Sampling Using Automated Manifold, February 4, 2003. CCP-TP-034, rev. 10, CCP HSG Data Generation and Batch Data Reporting, June 2, 2003.
	(19) Flammable: CCP-TP-031, rev. 12, CCP Headspace Gas Sampling Using Automated Manifold, February 4, 2003. CCP-TP-034, rev. 10, CCP HSG Data Generation and Batch Data Reporting, June 2, 2003.
	(19) Other gases (specify): CCP-TP-031, rev. 12, CCP Headspace Gas Sampling Using Automated Manifold, February 4, 2003. CCP-TP-034, rev. 10, CCP HSG Data Generation and Batch Data Reporting, June 2, 2003.
	Homogeneous Solids/Soils/Gravel Sample Analysis
	(20) Total metals: ACMM-2901, rev. 2, Determination of Trace Elements by ICP-AES for TRU Waste Characterization, April 7, 2003 Hg: ACMM-2810, rev. 2, Determination of Mercury by CVAA for TRU Waste Characterization, April 7, 2003
	(20) PCBs: N/A
	(20) VOCs: ACMM-9260, rev. 8, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry, April 7, 2003

AECHHM Page 2

CCP Waste Stream Profile Form

	(20) Nonhalogenated VOCs: ACMM-9441, rev. 8, Determination of Nonhalogenated Volatile Organic Compounds by Gas Chromatography, April 7, 2003
	(20) Semi-VOCs: ACMM-9270, rev. 5, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry, April 7, 2003
	(20) Other (specify): Solids Sampling: HFEF-OI-6910, rev. 2c, TWCP Core Drilling Operations, April 3, 2003 Metals Prep: ACMM-8909, rev. 7, Microwave Assisted Digestion of Homogeneous Solids and Soil/Gravel, April 7, 2003

Comments:

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.

(21)	Steven Rose	6-7-04
Signature of Site Project Manager	Printed Name	Date

NOTE: (1) Use back of sheet or continuation sheets, if required.
(2) If radiography, visual examination, headspace gas analysis, and/or homogeneous solids/soils/gravel sample analysis were used to determine EPA Hazardous Waste Codes, attach signed Characterization Information Summary documenting this determination.

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: AECHHM

Overview:

The Argonne National Laboratory-East (ANL-E) facility is a multi-disciplinary research laboratory that performs work in basic and applied science in the areas of engineering, energy technology, chemistry, physics, materials, biomedicine, and environmental studies.

All waste has been determined to have originated from, or was commingled with, waste from ANL-E defense-related programs. ANL-E grew from the initial experiments performed at the University of Chicago in 1941 to produce plutonium for nuclear weapons. ANL-E has been operated by the University of Chicago for DOE and its predecessor agencies since its inception. The work at ANL-E included key participation in the development of essentially all the nuclear reactor systems in use today for isotope production, power generation, and naval submarine propulsion, as well as experimental or proposed applications for weapons destruction, defense waste management, defense security and safeguards, and space propulsion. Many of the reactor systems developed at ANL-E, or research reactors operated by ANL-E, have had dual civilian and defense roles. Defense Waste generated from these activities is consistent with guidance from the Carlsbad Field Office for waste disposal at the WIPP. The defense waste determination was based on an examination of information for each drum with respect to the generator building and correlating this to the programs and activities that were conducted in those buildings. It was determined that defense-related programs and activities were conducted in the primary generator buildings during the entire time the TRU waste was generated. Therefore, all of the TRU waste was generated directly from defense programs or was commingled with waste generated by defense programs. Commingling of waste occurred at ANL-E because waste is often generated in small volumes (i.e. less than 55 gallons) and so liquids from small containers were mixed together, neutralized, and then solidified.

ANL-E Contact-Handled Homogenous Mixed (AECHHM) solids waste stream was generated during the period 1985 and 1999. The AECHHM waste stream consists of absorbed/solidified liquids originating primarily from various laboratory operations. This summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) Number AECHHM for Solidified Inorganic Waste. Additional details are discussed in CCP-AK-ANLE-001, *Central Characterization Project Acceptable Knowledge Summary Report for Argonne National Laboratory – West Contact-Handled TRU Waste Facility Maintenance and Laboratory Operations.*

Waste Stream Identification Summary:

Site Where TRU Waste Was Generated:	Argonne National Laboratory - East
Waste Stream Name:	ANL-E Contact-Handled Homogenous Mixed
Waste Stream Number:	AECHHM
Dates of Waste Generation:	1985 - 1999
Facility Where TRU Waste Was Generated:	ANL-E facility including buildings: 40, 200, 202, 205, 211, 212, 223, 306, 316, 350, and 398
Waste Stream Volume:	70 (55-gallon) drums and 2 (85-gallon) drums
Summary Category Group:	S3000 – Homogeneous Solids
Waste Stream TWBIR Identification:	AE-W038

Waste Matrix Code Group:	Solidified Inorganics
RCRA Hazardous Waste Codes:	D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D027, D028, D030, D035, D036, D037, F001, F002, F003, F004, and F005
Waste Matrix Code:	S3110 - Inorganic Particulates S3150 - Solidified Homogenous Solids
TRUPACT-II Content Code (TRUCON):	AE 211A

Waste Stream Description:

AECHHM is a homogeneous solids waste stream that contains neutralized and solidified or absorbed liquids, which results in a homogeneous inorganic matrix. AECHHM may contain minor amounts of debris (e.g., plastic, metals, rock) in certain drums. AECHHM contains primarily the following waste material parameters (WMPs): inorganic matrix, steel (packaging), and plastics (packaging). The following WMPs are also present in minor amounts: iron-based metals, other metals, other inorganic materials, cellulosics, plastics (waste materials), and organic matrix. Waste Matrix Code S3110 is at least 50% by volume inorganic particulates. Vermiculite was the inorganic particulate used. Waste Matrix Code S3150 includes waste that is at least 50% by volume solidified forms. This includes waste immobilized with aquaset or cement. The origin of the waste and process of immobilizing the liquids remained the same during the period of waste generation, but the immobilizing material utilized changed from vermiculite to aquaset/concrete in 1990 as described the section titled "Description of Waste Generating Process." Therefore, two waste matrix codes apply to this waste stream.

The TWBIR description includes waste from three sources: 1) Lab packs of acidic wastes from research and development projects site-wide, 2) Acidic wastewater from Chemical Technology (CMT) Division - Building 205, and 3) acidic wastewater from the analysis of plutonium at the New Brunswick Laboratory (NBL). The waste from these three sources was ultimately neutralized and solidified or absorbed as described above.

Point of Generation

Location

The ANL-E facility is located in Argonne, Illinois.

Area and Building of Generation

The primary facilities and divisions that generated this waste stream are: Building 200 (Chemistry Division and Chemical Technology Division), Building 205 (Chemical Technology Division), Building 306 (Waste Management Operations), and Building 350 (New Brunswick Laboratory). Minor quantities of waste have also been generated at Buildings 40, 202, 211, 212, 223, 316, and 398. Waste from these buildings has been commingled with waste from the primary facilities in existing containers.

Generating Processes

Description of Waste Generating Process

Liquid waste was generated by various laboratory operations involved with routine and nonroutine plutonium recovery, research, and development. This waste was generated during chemistry and plutonium separation operations and included both research and development as well as

testing/analytical laboratory activities. Waste Management Operations (WMO) personnel collected, mixed, neutralized, and solidified (with cement) or absorbed (with vermiculite) liquid waste generated from laboratory operations at the ANL-E. Liquids (milliliter quantities up to several gallons) from the laboratory operations were mixed together in a drum either at the generator building or at the WMO Building 306 and then neutralized. In a few cases, the liquid waste was neutralized and solidified/absorbed in containers less than 55-gallon capacity. The container was subsequently placed into a 55-gallon drum. Caustic soda (NaOH) was used to neutralize the liquid waste to a target pH of 4.5 – 7 and then the liquid was solidified/absorbed. WMO used vermiculite to absorb liquid waste until 1990. In 1990, WMO changed the waste treatment operation to use aquaset or cement to solidify the neutralized liquid waste. During the entire period of waste generation, the final result of the process ensured that no residual liquids remained in the drum.

RCRA Determinations - Hazardous Waste Determinations

To determine RCRA-regulated hazardous waste constituents for this waste stream, the Waste Management System (WMS), operating procedures, and safety reviews for laboratory operations were evaluated. If a RCRA-regulated hazardous waste constituent was used in the laboratory operations, it was assumed to be present in the liquid waste from that facility. Each facility was evaluated separately. Chemicals identified in operating procedures and safety reviews were compared to the State of Illinois and State of New Mexico hazardous waste regulations to determine which may result in the assignment of hazardous waste codes. Because the WIPP Waste Analysis Plan requires a conservative approach to assigning RCRA hazardous waste codes, applicable F-codes and D-codes were assigned to this waste stream.

This waste stream does not qualify for any of the exclusions outlined in 40 CFR 260 or 261.

The chemicals and metals associated with the assigned RCRA hazardous waste codes are listed below:

Acetone	Barium chloride dihydrate	Barium chromate	Barium nitrate
Barium sulfate	Benzene	Carbon tetrachloride	Chlorobenzene
1,4-Dichlorobenzene	1,2-Dichloroethane	2,4-Dinitrotoluene	Ethyl benzene
Ethyl ether	Freon	Methanol	Methylene chloride
Methyl ethyl ketone	Nitrobenzene	Pentachlorophenol	Potassium dichromate
Toluene	1,1,1-Trichloroethane	Xylene	Arsenic
Cadmium	Chromium	Lead	Mercury
Selenium	Silver		

Ignitability

Ignitables are absent from the homogeneous solids waste stream. The waste does not meet the definition of ignitability as defined in 40 CFR 261.21. This homogenous solids waste stream does not contain liquid waste or other constituents that would exhibit the RCRA characteristic of ignitability. Visual Examination (VE) was performed on all waste containers to ensure no liquid and no compressed gases were present. Oxidizers were used throughout the time of waste generation but were neutralized and then solidified/absorbed. The F003 hazardous waste code is applied to the waste stream because solvents were used even though the characteristic is for ignitability. However, as no liquids were allowed in the waste stream, the F-listed chemicals do not exist as liquids and therefore are not ignitable. The ignitability characteristic (D001) does not apply to the waste.

Corrosivity

The waste does not exhibit the characteristic of corrosivity as identified in 40 CFR 261.22. The waste is not aqueous or liquid. Acids were use in the laboratories, but were neutralized with caustic soda (NaOH) to a target pH range of 4.5 to 7.0 and then solidified/absorbed. The corrosive characteristic (D002) does not apply to the waste.

Reactivity

The waste stream does not meet the characteristic of reactivity as defined under RCRA 40 CFR 261.23. The original aqueous acidic waste was neutralized to a target pH range of 4.5 to 7.0 using caustic soda (NaOH) and then solidified/absorbed with aquaset/vermiculite. This waste treatment operation also ensures the waste does not exhibit the reactivity characteristic. Therefore, the waste code for reactivity (D003) is not assigned to this waste stream.

Toxicity

The waste in this waste stream meets the definition of toxicity as defined in 40 CFR 261.24. The toxicity characteristic contaminants fall into two categories: metals and organics. Organic compounds include halogenated and nonhalogenated solvents and other toxic compounds.

Arsenic (D004)
Arsenic was used in the characterization of new chelating agents. Based on this information, the D004 hazardous waste code has been assigned to the waste stream.

Barium (D005)
Barium chromate and barium nitrate were used for the determination of strontium in environmental water samples, soils, and vegetation. Barium sulfate and Barium chloride dehydrate were used in sample preparation by total dissolution and separation of Th, Pu, and Am. Based on this information, the D005 hazardous waste code has been assigned to the waste stream.

Cadmium (D006)
Cadmium was listed on various waste requisitions for drums in the AECHHM waste stream. Based on this information, the D006 hazardous waste code has been assigned to the waste stream.

Chromium (D007)
Potassium dichromate was used as a reagent in uranium analyses. Barium chromate was used for the determination of strontium in environmental water samples, soils, and vegetation. Based on this information, the D007 hazardous waste code has been assigned to this waste stream.

Lead (D008)
Lead was listed on various waste requisitions for drums in the AECHHM waste stream. Based on this information, the D008 hazardous waste code has been assigned to the waste stream.

Mercury (D009)
Mercury was listed on various waste requisitions for drums in the AECHHM waste stream. Based on this information, the D009 hazardous waste code has been assigned to the waste stream.

Selenium (D010)
Selenium was listed on various waste requisitions for drums in the AECHHM waste stream. Based on this information, the D010 hazardous waste code has been assigned to the waste stream.

Silver (D011)
Silver were listed on various waste requisitions for drums in the AECHHM waste stream. Based on this information, the D011 hazardous waste code has been assigned to the waste stream.

D018 (benzene)
Benzene was used in the laboratory on a regular basis. Based on this information, the D018 hazardous waste code has been assigned to the waste stream.

D019 (carbon tetrachloride)
Carbon tetrachloride was used in the laboratory. Based on this information, the D019 hazardous waste code has been assigned to the waste stream.

D021 (chlorobenzene)
Chlorobenzene was used in the laboratory. Based on this information, the D021 hazardous waste code has been assigned to the waste stream.

D027 (1,4-dichlorobenzene)
1,4-Dichlorobenzene was used in a spiking solution for sample preparation for semivolatiles in liquid mixed waste using continuous liquid-liquid extraction. Based on this information, the D027 hazardous waste code has been assigned to the waste stream.

D028 (1,2-dichloroethane)
1,2-Dichloroethane was used as a standard for volatile organic analysis for mixed waste. Based on this information, the D028 hazardous waste code has been assigned to the waste stream.

D030 (2,4-dinitrotoluene)
2,4-Dinitrotoluene was used in a spiking solution for sample preparation for semivolatiles in liquid mixed waste using continuous liquid-liquid extraction. Based on this information, the D030 hazardous waste code has been assigned to the waste stream.

D035 (methyl ethyl ketone)
Methyl ethyl ketone was used in a procedure for determining alpha/beta self-absorption correction factors. Based on this information, the D035 hazardous waste code has been assigned to the waste stream.

D036 (nitrobenzene)
Nitrobenzene was used in a spiking solution for sample preparation for semivolatiles in liquid mixed waste. Based on this information, the D036 hazardous waste code has been assigned to the waste stream.

D037 (pentachlorophenol)
Pentachlorophenol was used in a spiking solution for sample preparation for semivolatiles in liquid mixed waste using continuous liquid-liquid extraction. Based on this information, the D037 hazardous waste code has been assigned to the waste stream.

Listed Waste

The material in this waste stream was mixed with or derived from the treatment of a waste listed in 40 CFR 261, Subpart D as a hazardous waste from non-specific sources. Based on a review of the WMS, operating procedures, and safety review documents, the following F-listed RCRA hazardous waste numbers apply to this waste stream:

F001 (for carbon tetrachloride)
Carbon tetrachloride was used in laboratory processes and the hazardous waste code has been applied conservatively.

F002 (for 1,1,1-trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane and methylene chloride)
1,1,1-Trichloroethane was used for the determination of strontium in environmental water samples, soils, and vegetation. Methylene chloride was used for cleaning of mixed waste glassware and for extract cleanup by gel permeation chromatography. 1,1,2-Trichloro-1,2,2-trifluoroethane was used for sample preparation and separation of Pu, Th, and Am.

F003 (for acetone, methanol, ethyl benzene, ethyl ether, and xylene)
Acetone was used to rinse Uranium oxide metals, to clean glassware, and as a reagent in the preparation of Pu solutions. Ethyl benzene was used as a reagent for volatile organic analysis for mixed waste. Ethyl ether was used for the determination of strontium in environmental water samples, soils, and vegetation. Methanol was used in a procedure for the electro-deposition of Pu, for the cleaning of mixed waste glassware, and for volatile organic analysis for mixed waste. Xylene was used in sample preparation, in volatile organic analysis for mixed waste, and in the determination of Tc-99 in environmental samples.

F004 (for nitrobenzene)
Nitrobenzene was used in a spiking solution for sample preparation for semivolatiles in liquid mixed waste.

F005 (for benzene, methyl ethyl ketone, and toluene)
Benzene was used for volatile organic analysis for mixed waste. Methyl ethyl ketone was used in a procedure for determining alpha/beta self-absorption correction factors. Toluene was used for volatile organic analysis for mixed waste.

The material in this waste stream is not hazardous from specific sources since it was not generated from any of the processes listed in 40 CFR 261.32; nor does it consist of discarded chemical products, off-specification compounds, container residues or spill residue listed in 40 CFR 261.33. Therefore, the material in this waste stream is not K-Listed or U- or P-listed.

Beryllium

While waste requisitions for the AECHHM waste stream did not indicate the presence of beryllium, one waste requisition for a drum in the debris waste stream (AECHDM) indicated the presence of beryllium in very small quantities deposited on aluminum foil. Since some waste from both the debris and homogeneous waste streams originated from the same buildings, the homogeneous waste stream could possibly contain very small amounts of beryllium. Therefore, the AK indicates that the amount of beryllium in any drum from the AECHHM waste stream would not exceed trace quantities (1% by weight of the drum contents). Any beryllium present is as a contaminant of the process and not as an unused, commercial chemical product, and therefore is not a P015 listed waste.

Conclusion

The following EPA hazardous waste codes are assigned to waste stream AECHHM:

- F001, F002, F003, F004, and F005
- D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D027, D028, D030, D035, D036, and D037

Polychlorinated Biphenyls

Based on information contained in the WMS, and on waste requisitions, this waste stream does not contain PCBs or PCB-containing articles.

Physical Form

AECHHM is a homogeneous solids waste stream that contains neutralized and solidified or absorbed liquids, which results in a homogeneous inorganic matrix. AECHHM may contain minor amounts of debris (e.g., plastic, metals, rock) in certain drums. AECHHM contains primarily the following WMP: inorganic matrix, steel (packaging), and plastics (packaging). The following WMPs are also present in minor amounts: iron-based metals, other metals, other inorganic materials, cellulosics, plastics (waste materials), and organic matrix. S3110 is at least 50% by volume inorganic particulates. Vermiculite was the inorganic particulate used. S3150 includes waste that is at least 50% by volume solidified forms. This includes waste immobilized with aquaset or cement. The physical form of this waste stream has been confirmed using VE.

Prohibited Items

The absence of prohibited items is determined and documented through acceptable knowledge and Central Characterization Project waste confirmation activities. Visual examination is used in lieu of radiography on all drums in the waste stream to meet the WAP requirements. No prohibited items have been found such as:

- Liquids
- Non-radioactive pyrophoric materials
- Waste incompatible with backfill, seal and closure materials, container and packaging materials, shipping container materials, or other wastes
- Explosives or compressed gases
- PCBs in concentration greater than or equal to 50 ppm
- Waste exhibiting the characteristics of ignitability, corrosivity, or reactivity.
- Hazardous waste not occurring as co-contaminants with TRU mixed wastes

Radiography is used to screen for liquids in the annulus between the drum and rigid liner.

Headspace Gas/Volatile Organic Compound Information

Lot #1 of waste stream AECHHM consists of a total of 10 (55-gallon) drums. None of the headspace gas VOC target analytes were detected. One tentatively identified compound was detected in one drum, but the compound is not included in 40 CFR Part 261, Appendix VIII.

The specifics of this information are included in the attached Headspace Gas Summary report.

Solids Sampling/Analysis Information

Solid core sampling and analysis was completed on all ten drums in Lot #1 of the AECHHM waste stream. Based on the analysis results, no new hazardous waste codes were assigned. More specific results are as follows:

The VOC Totals analysis detected the presence of acetone, butanol, and methyl ethyl ketone, but none of the resulting UCL90 values exceeded the respective target analyte PRQLs.

The Semi-VOC Totals analysis did not detect the presence of any of the target analytes.

The metals analysis detected the presence of all the target analytes including antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, vanadium, and zinc. However, cadmium, chromium, and zinc were the only target analytes where the UCL90 exceeded the PRQL.

Radionuclide Information

Radiological Characterization

According to the AK Summary Report, the two most prevalent radionuclides are U-238 and Pu-239. Radionuclides listed in the CH-WAC are listed below with their respective approximate weight percent in this waste stream:

U-238:	83.4%
Pu-239:	14.0%
Pu-240:	1.44%
U-233:	0.03%
Am-241:	0.01%

Trace amounts (<0.01%) for the remaining WIPP Tracked Isotopes

Other radionuclides contributing greater than 0.1 weight percent are as follows. Please note that other radionuclides may be present, but are not listed below because their contribution is negligible and are expected to represent less than 0.1 weight percent:

Th-232:	0.11%
U-235:	0.85%

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-C-003	Historic Operations in Building 212, D-Wing	Tom Krause	6/9/00
AE-C-004	Record of Communication; Analytical Chemistry Laboratory Operations and Locations	Tom Krause	7/20/00
AE-C-005	Discussion with Jim Wescott and Dan McNamee; ANL-E Waste Stream Designations	Tom Krause	7/20/00
AE-C-006	Discussion with Cindy Rock; Waste Management Operations	Tom Krause	7/20/00
AE-C-008	Certification package for NFT filters used for waste drums.	NFT, Inc	11/93 and 3/94
AE-C-012	Transfer of RERTR Fuel Plates to ANL	L. A. Nelmark	3/21/97
AE-C-013	Discussion with Don Graczyk; ACL Facility Descriptions for Bldg 200	Tom Krause	8/18/00
AE-C-014	WIPPWAC Hotline Response; Item 106: Waste Stream Delineation	Rick Chavez	8/22/00
AE-C-015	Discussion with Seth Snyder and Al Youngs; Chemistry Division operations in Building 200, M-wing and general description of Building 200	Tom Krause	8/28/00
AE-C-016	Cave Area Description (for Building 200)	Tory Steed	8/25/00
AE-C-019	Chemical Usage at NBL for plutonium and uranium analysis - Conversation with Alma Stiffin and Iris Frank	Tom Krause	9/13/00
AE-C-020	Content of radionuclide solutions - Conversation with Alma Stiffen and Jan Muller	Tom Krause	9/15/00
AE-C-022	Correspondence with Terri Bray re: Chemical Usage in the AGHCF	T. Krause	9/21/00
AE-C-023	Interview w/ Fred Martino concerning chemicals Listed in ACL procedures	T. Krause	9/19/00
AE-C-024	Miscellaneous Correspondence with Daniel Hecker	Gary Lasswell	9/15/00
AE-C-025	Conversation with Dan Hecker: Disposition of drums from Buildings other than 200, 205, 212, and 350.	Tom Krause	09/18/00
AE-C-026	Correspondence with Seth Snyder re: CHM Chemicals Listed in Safety Reviews	T. Krause	9/20/00
AE-C-027	Operations Building 315	Tom Krause	9/28/01
AE-C-028	Operations that Generated TRU Waste in Building 223	Tom Krause	9/28/01
AE-C-029	Request for Revised Transuranic Package Transporter (TRUPACT-II) Content (TRUCON) codes from Argonne National Laboratory - East (with 3 attached pages of code descriptions)	C. Rock	4/19/02
AE-C-030	NCR-ANLE-0023-02	Jeanne Elkins/Jim Brown	02/26/02

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-C-031	E-mail from Argonne National Laboratory -East From Cindy Rock requesting the AK report and supporting documentation be revised to correct container size for approval of AK summary.	Cindy Rock	04/26/02
AE-C-032	NCR-ANLE-0019-02	William Kimball/Jeanne Elkins	03/18/02
AE-C-033	NCR-ANLE-0021-02	Forrest Martin/Jeanne Elkins	07/21/02
AE-C-034	NCR-ANLE-0059-02	Abrham L. Romo/Jeanne	05/17/02
AE-C-035	NCR-ANLE-0074-02	Forrest Martin/Jeanne Elkins	05/02/02
AE-C-036	NCR-ANLE-0111-02	Forrest Martin/ Jeanne Elkins	05/30/02
AE-C-037	NCR-ANLE-0110-02	Forrest Martin/Jeanne Elkins	05/29/02
AE-C-038	E-mail from Jim Frego to Ben Gutierrez	Jim Frego	08/20/02
AE-C-039	E-mail from J. Frego on CH-TRU homogenous drums.	Jim Frego	08/07/02
AE-C-041	Discussion with Ms. Santorelli, an employee involved in waste treatment operations.	Tom Krause	2/10/03
AE-C-042	Interview with Amrit Boparai, Analytical Lab Manager	David B Becker	3/19/03
AE-C-043	Correspondence with Dan Hecker regarding TRU waste stream management	Dan Hecker	6/26/03
AE-C-045	Interview with Dan Hecker regarding liquid waste treatment	David B Becker	4/16/03
AE-C-046	Correspondence with Dan Hecker about moving two drums from AECHDM to AECHHM	Dan Hecker/Blair Becker	7/22/03
AE-C-047	CCP Non-conformance Report	Fred Pooler	8/05/03
AE-C-048	Correspondance with Jim Frego regarding TRU Waste Neutralization	Jim Frego	12/19/03
AE-D-001	Discrepancy; Bldg of Origin (212 versus 330)	Tom Krause	7/26/00
AE-D-002	Discrepancy; Radionuclides	Tom Krause	7/26/00
AE-D-003	Discrepancy; Time Period of Generation	Tom Krause	7/26/00
AE-D-004	Discrepancy; Hazardous Constituents	Tom Krause	7/26/00
AE-D-005	Resolution of NBL chemical usage and chemicals present in AE-CH-H-M waste stream	Tom Krause	9/18/00

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-D-006	Discrepancy; AGHCF Chemical Usage	Tom Krause	9/21/00
AE-D-010	Discrepancy Resolution pertaining to Radionuclide information	Ben Gutierrez	02/06/02
AE-D-013	Discrepency; Summary Category Group	David B. Becker	8/21/03
AE-I-001	Separation of Plutonium by Mini Anion-Exchange	Jon R. Weiss	03/10/78
AE-I-002	IFR Fuels Work	A. G. Hins	8/13/84
AE-I-003	Determination of the Isotopic Composition of Plutonium By Thermal Ionization Mass Spectrometry	New Brunswick Laboratory	NA
AE-I-004	Dissolution of Plutonium Containing Materials Using Sealed Reflux	New Brunswick Laboratory	NA
AE-I-005	Determination Of Weight Loss of Plutonium Oxide on Heating	New Brunswick Laboratory	NA
AE-I-006	Determination of Specific Gravity and Density of Plutonium Solutions	New Brunswick Laboratory	NA
AE-I-007	IFR Fuels Development	A. G. Hins	7/6/84
AE-I-008	IFR Fuel Interdiffusion Studies (Dayananda) Test Capsule Evaluation	Allan Hins	5/13/88
AE-I-009	Determination of Plutonium by Controlled -Potential Coulometry	New Brunswick Laboratory	NA
AE-I-010	Memo from A.G. Hins to IFR Distribution "Diffusion Couple Studies - As Received Materials Structures" with internal report "Metallographic Examination of As-Received Clad and Fuel Materials for IFR Diffusion Studies," by J A Zic, et. al., undated	A. G. Hins	4/22/85
AE-I-011	Clad/Fuel Diffusion Studies - As Received U-Pu-Zr Materials	A. G. Hins	6/5/85
AE-I-012	SDI Cermet Fuel Fab - Glovebox Facility	A. G. Hins	5/29/86
AE-I-013	Field Work Proposal - Multi-megawatt Nuclear Space Power Systems; Reactor Fuels - Cermet Development	L. A. Nelmark	4/15/87
AE-I-014	Bi-Monthly Report on Cermet Fuels - April/May 1987; Process Integration and Verification	H. R. Thresh	6/4/87
AE-I-015	Sequence of Events for Camphor Coating Studies of UN Powder	Unknown	5/22/87
AE-I-016	Fissile Scrap Passivation, Activity 41603	A. G. Hins	12/28/77
AE-I-017	Passivation Report	D. R. Schmitt	3/14/80
AE-I-018	Determination of Plutonium Using Automated Controlled-Potential Coulometry	New Brunswick Laboratory	NA
AE-I-019	Dissolution of Pu-Containing Materials Using Acid Digestion	New Brunswick Laboratory	NA

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-I-020	Dissolution of Pu- Containing Materials Using Sodium Bisulfate Fusion	New Brunswick Laboratory	NA
AE-I-021	Purification of Neptunium by Anion Exchange Separation	New Brunswick Laboratory	NA
AE-I-022	Electrolytic Cleaning of Pu Metal	New Brunswick Laboratory	NA
AE-I-023	Filing Method of Cleaning Pu Metal	New Brunswick Laboratory	NA
AE-I-024	Determination of Trace Elements in a Uranium Matrix by Anion Exchange Chromatography and Inductively Coupled Plasma (ICP) Emission Spectrometry	Patricia M Santollquido	Revision 1, November 24, 1999
AE-I-025	Determination of Plutonium using Automated Controlled Potential Coulometry	Paul V. Croatto, Usha I. Narayanan	Revision 6, 12/31/99
AE-I-026	An Evaluation of Tri-N-Butyl Phosphate Purification Techniques in the PUREX process	Barbara Saunders	2/16/77
AE-I-027	Liquid-Liquid, Packed Column Countercurrent Extractor for Pu Extraction from U-Pu-Fe	W. Miller	9/19/83
AE-I-028	Safety Review - Plutonium Experiment in G-118	T. Tomczuk, W. Miller	2/20/85
AE-I-029	Trip Report Visit to LANL and Rocky Flats Analytical Laboratory	Bowers, D. L., Heinrich, R. R., Huff, E. A.	2/26/85
AE-I-030	Safety Review - Proposed Experiment - Alpha Radiolysis of TRUEX-CCl4 with 241Am	Kalina, D.	May 23, 1985
AE-I-031	Safety Review-PFP Waste Demonstration Run in G-117	R. Leonard	6/17/85
AE-I-032	Safety Review of Facilities for the Determination of Hydrogen, Oxygen, and Nitrogen in Plutonium-Bearing Metals, Alloys, Oxides, Carbides, and Some Metal Compounds; Building 205, Room G-102	H. Goodspeed, R. Heinrich, and D. Gracyk	9/16/85
AE-I-033	Conceptual Process for Reduction of Uranium Oxides to the Metal	R. Steunenberg, Z. Tomczuk	12/17/85
AE-I-034	Determination of Uranium by Ferrous Reduction in Phosphoric Acid and Titration with Dichromate (NBL Titrimetric Method)	I. Frank	Revision 5, 11/24/99
AE-I-035	Determination of Uranium by Automated Constant Current Coulometry	Paul V. Croatto	Revision 1, 11/24/99
AE-I-036	Determination of Uranium by Ferrous Reduction in Phosphoric Acid and Titration with Cerium (IV).	Jeffrey P. Zebrowski	Revision 1, 11/24/99
AE-I-037	Preparation of Plutonium Blind Standard Solution and Aliquants	M. I. Spaletto	Revision 4, 12/3/99
AE-I-038	Safety Review - Pu Extraction Experiments In G-118	Johnson, T. R., Fischer, D.F.	4/2/86

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-I-039	Safety Review of ICP/AES for Analysis of Radioactive Samples	Bowers, D., Huff, E.	9/8/86
AE-I-041	Dissolution of Plutonium-Containing Materials Using Acid Digestion	Alma V. Stiffin	Revision 2, 12/13/99
AE-I-042	Safety Review of Remote Preparation of Radioactive Glass Samples in the Senior Cave	Hoh, J., Gerding. T.	1/16/90
AE-I-043	Dissolution of Plutonium-Containing Materials Using Sodium Bisulfate Fusion	Alma V. Stiffin	Revision 2, 12/13/99
AE-I-044	Safety Review for Processing NBL Waste Solutions in G-134 and G-117	Chamberlain, D.B.	9/14/89
AE-I-045	Dissolution of Plutonium-Containing Materials Using Sodium Carbonate Fusion	Alma V. Stiffin	Revision 2, 12/13/99
AE-I-046	Safety Review for the Gas Generation Studies in Support of the WIPP	Reed. D., Okajima, S.	10/1/90
AE-I-047	Safety Review Stripping Salt Previously Used in the Box 1 Electrorefiner in G-118	Fischer, D. F., Johnson, T. R.	10/4/90
AE-I-048	Safety Review for Furnace Demonstration Test in Building 205, G-109	Petri, M. C., Liebowta, L., Blomquist, R. A.	2/13/92
AE-I-049	CMT Division Separation Science and Technology Section - January 1992	Vandergrift, G.F.	3/31/92
AE-I-050	Revised Criticality Hazards Control Statement for IFR Fuels Reprocessing Laboratory G-118 Located in Building 205	Wolson, R.	2/1/93
AE-I-051	Safety Review for Sealing and Opening Vials Irradiated with 60Co Irradiation Facilities - Building 205, Room X-109	Buchhoiz, B., Nunez, L.	8/24/93
AE-I-052	Safety Review for CM-1725-10 VT Furnace Operations in Building 205, G109 Pu Glovebox	Petri, M.C., Leibowitz, L. Blomquist, R.A.	8/31/93
AE-I-053	Purification of Plutonium by Anion Exchange Separation (Mini-Column)	Usha I. Narayanan	Revision 3, 12/13/99
AE-I-054	CMT Division Separation Science and Technology Section	George Vandegrift	1/5/94
AE-I-055	Revised IFR Fuel Reprocessing Program Monthly Report - December 1993	Laidler, L.L.	1/17/94
AE-I-056	CMT Division Separation Science and Technology Section - July 1994	G. Vendergrift	12/12/94
AE-I-057	Preparation of Weight Aliquants of Plutonium Solutions	M. Spaletto	Revision 3, 12/13/99
AE-I-058	Electrolytic Cleaning and Dissolution of Plutonium Metal	M. Spaletto	Revision 3, 12/13/99
AE-I-059	Cleaning by Filing and Dissolution of Plutonium Metal	A. Stiffin	Revision 3, 12/13/99
AE-I-060	Electrodeposition of Plutonium and other Alpha-Active Actinides	A. Stiffin	Revision 1, 12/13/99

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-I-061	Dissolution of Uranium Metal Samples	A. Stiffin	Revision 2, 12/13/99
AE-I-062	Dissolution of Uranium Oxides in Powder or Pellet Form	I. Frank	Revision 3, 12/13/99
AE-I-063	Microwave Dissolution of UO2 and U308	Iris W. Frank	Revision 2, 12/13/99
AE-I-064	Microwave Dissolution of Uranium-Contaminated Alumina Trap Material	Iris W. Frank	Revision 1, 12/13/99
AE-I-065	Dissolution of Uranium-Aluminum and Uranium-Aluminum-Silicon Alloys	Iris W. Frank	Revision 2, 12/13/99
AE-I-066	Dissolution of Uranium-Containing Scrap and Ash Samples Using Acid Leaching	Alma V. Stiffin	Revision 1, 12/13/99
AE-I-067	Dissolution of Uranium-Containing Materials Using Sodium Carbonate	Alma V. Stiffin	Revision 1, 12/14/99
AE-I-068	Dissolution of Pre-Product and Product Materials	Alma V. Stiffin	12/14/99
AE-I-069	Purification of Uranium and Plutonium by Anion Exchange for Mass or Alpha Spectrometric	B. Srinivasan	Revision 4, 12/14/99
AE-I-070	Safety Review for Unsaturated Testing of Uranium Metal Spent Fuel in Building 205 Senior Cave and K-116 Facilities	Fortner, J.	Revision 00, 3/7/00
AE-I-071	Safety Review of Tests with Samples of Spent Fuel in Building 205, K-104 (Senior Cave) and, in K-116, Sampling of Leachate Solutions from the	Finn, P. A.	Revision 01, 3/13/00
AE-I-072	Safety Review for Drip Tests on Radioactive Waste Glass Samples	Cunnane, J. C.	Revision 01, 4/3/00
AE-I-073	PCT Testing of Pu-Containing Glass-Bonded Sodalite in Building 205, Labs G-109 and G-133	Morss, L. R.	Revision 01, 4/14/00
AE-I-074	Determination of 241-Am in Solution by Gamma-Ray Spectrometry	Alma V. Stiffin	Revision 2, 11/24/99
AE-I-075	Determination of the Weight Loss of Plutonium Oxide on Heating	M. Irene Spaletto	Revision 3, 12/3/99
AE-I-076	Completed Checklists for DPP 5.9, "Contaminated Cooling Water System D&D"	Pitman, Carlson	Revision 0, 1, 10/25/93
AE-I-078	Manual Determination of the Density and Specific Gravity of Uranium- and Plutonium-Containing Solutions	Khalida S. Scheidelman	Revision 2, 11/24/99
AE-I-079	Completed Checklists for DPP 5.12, "Acid/Caustic Neutralization and Solidification"	Rick Lee	Revision 0, 1994
AE-I-080	Completed Checklist for DPP 5.13, "Inert Particulate Solidification"	Earl Armand	Revision 0, 4/7/94
AE-I-081	Completed Procedure Checklists for DPP 5.14, "Oil and Organic Liquid Solidification"	Armand, Lahey, Wood	Revision 0, 1994
AE-I-082	Completed Checklists for DPP 5.15, "Silicon Oil and Grease Solidification"	Armand, Wood	Revision 0, 1994
AE-I-083	Removal of Magnesium-Oxide from Building 212	Mitchell	2/24/94

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
	Gloveboxes		
AE-I-084	Determination of Uranium by the New Brunswick Laboratory High Precision Titrimetric Method-Gravimetric Version	Anna M. Voeks	Revision 8, 12/02/99
AE-I-085	Building 212 D Wing Glovebox D&D Project, Documentation Listing	B. Pitman, P. Carlson	Revision 0 and 2, 2/10/94
AE-I-086	Vacuum Pump D&D-Volume Reduction	B.M.Pitman, P.S.Carlson	Revision 0 and 1, 8/3/93:11/16/93
AE-I-087	Diffusion Pump D&D	S. Carlson	Revision 0, 1/25/94
AE-I-088	Contaminated Cooling Water System D&D	B. M. Pitman, P. S. Carlson	Revision 1, 1/25/94; 10/25/93
AE-I-089	Bagout and Packaging of Lead from Glove boxes	B. M. Pitman, P. S. Carlson	Revision 0 and 1, 1/10/94; 1/13/94
AE-I-090	Acid/Caustic Neutralization and Solidification	B. M. Pitman, P. S. Carlson	Revision 0, 12/21/93
AE-I-091	Inert Particulate Solidification	B. M. Pitman, P. S. Carlson	Revision 0, 1/12/94
AE-I-092	Oil and Organic Liquid Solidification	B. Pitman, P. Carlson	Revision 0, 1/19/94
AE-I-093	Silicon Oil and Grease Solidification	B. Pitman, P. Carlson	Revision 0, 2/3/94
AE-I-094	Petroleum Jelly and Grease Solidification	B. Pitman, P. Carlson	Revision 0, 2/17/94
AE-I-095	NFS Glovebox D&D Procedures	Nuclear Fuel Services	Revision 0 and 1, 1994,1995
AE-I-096	Temporary Storage of 212 D&D Waste in Bldg 330	various	1994,1995
AE-I-097	Determination of Uranium by Manual Constant Current Coulometry	Paul V. Croatto	Revision 1, 11/24/99
AE-I-098	Determination of Uranium by the Ignition (Gravimetric) Method	Alma V. Stiffin	Revision 2, 11/24/99
AE-I-099	Determination of Micro- to Sub-microgram Quantities of Uranium Using Laser-Induced Kinetic Phosphorimetry	Paul V. Croatto	Revision 1, 11/24/99
AE-I-100	Determination of Uranium Blank Concentrations by Isotope Dilution and Thermal Ionization Mass Spectrometry	Steven A. Goldburg	Revision 1, 12/2/99
AE-I-101	Determination of Isotopic Composition of Uranium by Thermal Mass Spectrometry	Anthony J. Traina	Revision 5, 11/24/99
AE-I-102	Determination of Isotopic Composition of Uranium Total Evaporation Mass Spectrometry (Finnigan Mat 261)	Anthony J. Traina	Revision 1, 12/2/99
AE-I-103	Determination of Uranium and Plutonium Using Dilution Mass Spectrometry	B. Srinivasan	Revision 2, 12/3/99
AE-I-104	Determination of Isotopic Composition of Plutonium or Uranium by Thermal Ionization Mass	Peter B. Mason	Revision 1, 12/14/99

Source Document Tracking Number	Title	Author	Document Revision # and Date
	Spectrometry (Finnigan MAT261)		
AE-I-105	Alpha Spectrometric Measurements for Alpha-emitting Nuclides	David T. Baran	Revision 1, 12/3/99
AE-I-106	Preparation of Standard Potassium Dichromate Titrant	M. Irene Spaletto	Revision 6, 12/03/99
AE-I-107	Preparation of Uranium Standard Solutions	M. Irene Spaletto	Revision 5, 12/3/99
AE-I-109	Preparation and Standardization of Potassium Dichromate Titrant	Iris W. Frank	Revision 3, 12/3/99
AE-I-110	Preparation of Uranium Spike Solution for Isotope Dilution Mass Spectrometry Analysis	Anthony J. Traina	Revision 1, 12/3/99
AE-I-111	Subsampling Liquid UF6 from Bulk Containers	Usha I. Narayanan	Revision 3, 12/2/99
AE-I-112	The Removal and Cleaning of the UF6 Mass Spectrometer Inlet System Cold Traps	Paul V. Croatto	Revision 1, 12/2/99
AE-I-113	Sieving, Grinding and Blending Operations	Patricia M. Santoliquido	Revision 1, 5/14/99
AE-I-114	Operation of the NBL-Modified Cozzoli Ampulator	Paul V. Croatto	Revision 2, 12/2/99
AE-I-115	Operation of the Buehler Abrasive Cutter for Cutting Uranium Metals of Less Than 3% U-235 Enrichment	Glennda J. Oriowicz	Revision 2, 12/14/99
AE-I-116	Purification of Uranium by Anion Exchange Separation (Mini Column)	Usha I. Narayanan	Revision 2, 12/14/99
AE-I-117	Purification of Uranium for Mass Spectrometric Analysis	Alma V. Stiffin	Revision 3, 12/14/99
AE-I-118	Purification of Uranium for Mass Spectrometric Analysis Using U/TEVA-SPEC Columns	Iris W. Frank	Revision 2, 12/14/99
AE-I-120	Determination of Density with the Mettler/Paar DMA 46 Density Meter	Khalida S. Scheidelman	Revision 1, 11/24/99
AE-I-121	Determination of Uranium in Solids, Sediments, and Sludges	Alice M. Essling, Donald G. Graczyk	Revision 01, 1/30/87
AE-I-122	Determining Isotopic Composition of Uranium or Plutonium by Thermal Ionization Mass Spectrometry	Florence P. Smith	Revision 01, 12/12/96
AE-I-123	Determination of Uranium in Waters	Alice M. Essling	Revision 1, 1/30/87
AE-I-124	Sample Preparation and Separation of Pu, Th, and Am from Solid (Soils, Sediments, Sweepings) and Liquid (Waters, Milk) Environmental Samples for Analysis by Alpha-Spectrometry	L. B. Gillis, F. Markin, L. L. Wetter	Revision 6, 3/25/93
AE-I-125	Cleaning of Laboratory Glassware for Use in Sample Preparation for Environmental Radionuclides	Lynn B. Gillis	Revision 2, 1/30/87
AE-I-126	Standard Operating Procedure: Sample Preparation by Total Dissolution and Separation of Thorium, Plutonium, and Americium from Solid Environmental Samples for Analysis by Alpha-Spectrometry	Lesa L. Wetter	Revision 00, 04/08/88

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-I-127	Standard Operating Procedure: Sample Preparation of Solid Environmental Samples for Analysis of Radionuclides	Lesa L. Wetter	Revision 00, 07/05/90
AE-I-128	Standard Operating Procedure Gross Alpha and Beta Radioactivity	Richard B. Holtzman, W. Elane Streets	Revision 01, 1/10/92
AE-I-129	Contamination Control and Handling of Laboratory Waste	Stephen D. Kent	Revision 00, 10/26/92
AE-I-130	Standard Operating Procedure: Cleaning of Mixed Waste Glassware	Kathleen J. Parish	Revision 00, 10/26/92
AE-I-131	Standard Operating Procedure: Volatile Organic Analysis for Mixed Waste	Laura L. Lamoureux	Revision 00, 10/26/92
AE-I-132	Standard Operating Procedure: Gross Alpha/Beta Analysis of Soil and Sediment Samples by High-Pressure Microwave Digestion	Judith S. Yaeger, Lesa L. Smith	Revision 00, 5/8/95
AE-I-133	Standard Operating Procedure Operation of the Tennelec LB 5110 Series II Automatic Alpha-Beta Proportional Counter	Judith S. Yaeger, Lesa L. Smith	Revision 03, 06/25/96
AE-I-134	Standard Operating Procedure: Separation of Plutonium, Thorium, Americium, and Uranium from Environmental Samples Utilizing Extraction Chromatography and Anion Exchange Chromatography	Judith S. Yaeger, Lesa L. Smith	Revision 03, 6/25/96
AE-I-135	Standard Operating Procedure: Preconcentration and Determination of Actinides in Soil Samples Using Diphonix TM Resin and a NaOH Total Dissolution	Judith S. Yaeger and Lesa L. Smith	Revision 01, 11/19/98
AE-I-136	Standard Operating Procedure: Using Ion Chromatography for the Determination of Anions in Radioactive and/or Low Volume Samples	Delbert D. Bowers	Revision 02, 4/2/99
AE-I-137	Standard Operating Procedure: X-Ray Diffraction (XRD) of Plutonium Samples In Building 205, Rooms B-125 and B-130	Benjamin S. Tani, Paul L. Johnson	Revision 00, 9/12/96
AE-I-138	Operation of the United Technologies Packard 2550 TR/AB Tri-Carb Liquid Scintillation Analyzer and Interfaced Compaq 4/25S System	Delbert L. Bowers	Revision 00, 3/28/00
AE-I-140	Standard Operating Procedure Sample Preparation and Separation of Plutonium, Americium, Uranium, and Strontium from Air Filters	TonyTenKate, Lesa L. Wetter	Revision 00, 04/05/88
AE-I-141	Standard Operating Procedure: Determination of Uranium in Soils, Sediments, and Sludges by Kinetic Phosphorimetry	Alice M. Essling	Revision 00, 05/16/90
AE-I-142	Standard Operating Procedure: Determination of Uranium in Waters by Kinetic Phosphorimetry	Alice M. Essling	Revision 00, 05/24/90
AE-I-143	Standard Operating Procedure: Determination of Uranium in Rocky Flats Soils, Sediments, and	Alice M. Essling	Revision 01, 02/11/91

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
	Sludges by Kinetic Phosphorimetry		
AE-I-144	Standard Operating Procedure: Separation of Uranium from Rocky Flats Soils, Sediments, and Sludges for Isotopic Abundance Determinations	Alice M. Essling	Revision 01, 9/9/91
AE-I-145	Standard Operating Procedure: Preparation of Environmental Samples for Gamma Spectroscopy Analysis	W. Elaine Streets	Revision 01, 1/30/87
AE-I-146	Standard Operating Procedure: Radium-226 and Radium-228 Determination in Water and Soil Samples Using NaI Detector and Least Squares Processing of Data	Francis Markun	Revision 03, 11/17/98
AE-I-147	Standard Operating Procedure: Determination of Strontium in Environmental Samples Utilizing Extraction Chromatography	Judith S. Yeager, Lesa L. Smith	Revision 05, 1/26/96
AE-I-148	Standard Operating Procedure: Sample Preparation for Semivolatiles in Liquid Mixed Waste Using Continuous Liquid-Liquid Extraction	Stephen D. Kent	Revision 01, 9/29/94
AE-I-149	Standard Operating Procedure: Determination of Strontium in Environmental Water Samples	Lesa L. Wetter	Revision 01, 07/31/87
AE-I-150	Standard Operating Procedure: Determination of Strontium in Environmental Soils and Vegetations	Lesa L. Wetter	Revision 00, 07/31/87
AE-I-151	Standard Operating Procedure: Determination of Technetium-99 in Environmental Samples	Francis Markun, Lesa L. Wetter	Revision 01, 10/23/87
AE-I-152	Standard Operating Procedure: Preparation of WIPP Solidified Waste (Simulated Type I Sludge CC 111/211) Performance Demonstration Sludge Blank for Metal Analysis	K.J. Parish	Revision 00, 7/7/97
AE-I-153	Standard Operating Procedure: Operation of Kicksort Alpha Spectrometers with Associated Ortec ADCAM and AST Personal Computer with Ortec Software for Isotopic Analysis of Environmental Samples by Alpha Spectrometry Using Isotopic Dilution	Lesa L. Smith	Revision 00, 3/16/93
AE-I-154	Standard Operating Procedure: Extract Cleanup by Gel Permeation Chromatography	Kathleen J. Parish	Revision 00, 10/26/92
AE-I-156	Waste Requisition Process	ANL-Environmental Management Operations	Revision 0-3, 2/95-2/5/97
AE-I-157	Queries from WMS Database for Physical Form, Radionuclides, and Waste Containers	WMS	7/19/00
AE-I-159	Minutes of D Wing Building 212 Plutonium Gloveboxes D&D Project Team	C. L. Cheever	9/9/93
AE-I-160	Waste Disposal Requisition Process	Lachman, M. M.	Revision 1, 12/94
AE-I-161	Information of the Thirty Waste Drums for the AGHCF to be Transferred to PFS-WMO in CY2000	T. Bray	4/26/2000
AE-I-163	AGHCF Transfer Slip for LANL Incinerator Ash	L. A. Neimark	6/2/97

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-I-165	Transfer Request to Building 205 of Waste Pails...	D. B. Chamberlain, et al	3/18/91
AE-I-166	Transuranic Waste Generated at the Alpha Gamma Hot Cell Facility (AGHCF)	T. Bray	6/16/00
AE-I-167	Work Plan for the Fabrication of Chemically Bonded Phosphate Samples Containing	L.A. Neimark	1/9/97
AE-I-169	Proposed Revision to Scope of Rocky Flats Ceramicrete Proposal	L.A. Neimark	6/4/97
AE-I-170	Work Plan for the Characterization of N-Reactor Fuel Specimens (A/G 562)	T. Bray	3/9/99
AE-I-175	Experimental Design Review of Aluminum Fuel Melting Furnace	A. B. Cohen	12/4/97
AE-I-177	Results from the First Melt Dilution Tests of Irradiated Fuel	A. B. Cohen	01/19/99
AE-I-178	Work Plan for the Preparation of Unirradiated Al-clad Specimens for CMT	T.S. Bray	12/2/99
AE-I-181	Basic and Applied Studies in Liquid-Liquid Extraction, Ion Exchange, and Extraction Chromatography	Kenneth L. Nash, Seth Snyder	Revision 1, 06/02/2000
AE-I-182	Novel Liquid-Liquid Extraction and Extraction Chromatographic Systems for the Separation and Preconcentration of Radionuclides	Dietz, Mark L. and Cafasso, Fred A.	11/1/96
AE-I-183	Basic and Applied Studies in Liquid-Liquid Extraction and Ion Exchange	Chemistry Division; Chemical Separations; Argonne National Laboratory	11/5/96
AE-I-184	Characterization of New Chelating Agents	Chemistry Division; Heavy Elements Coordination Chemistry; Argonne National Laboratory	11/5/96
AE-I-185	Phosphate Mineralization of Actinides by Measured Addition of Precipitating Anions	Chemistry Division; Heavy Elements Coordination Chemistry; Argonne National Laboratory	11/5/96
AE-I-186	Two-Stage Molecular Agents	Chemistry Division; Chemical Separations; Argonne National Laboratory	11/21/96
AE-I-187	Synthesis of Compounds for Chemical Separations	Chemistry Division; Chemical Separations Science; Argonne	4/7/98

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
		National Laboratory	
AE-I-188	Determination of waste generated in Buildings 108, 202, 203, 206, 223, 306, 315 and 331	Krause, Tom	9/15/00
AE-I-189	Evaluation of Solidified/stabilized Materials from Bldg 212 D&D Project	Tom Krause	9/15/00
AE-I-190	Evaluation of Chemicals listed in AGHCF Operations Manual	T. Krause	9/15/2000
AE-I-191	Evaluation of Chemicals Used by New Brunswick Laboratory	Krause, Tom	9/15/00
AE-I-192	Evaluation of Chemicals used by the Analytical Chemical Laboratory	Krause, Tom	9/15/00
AE-I-193	Evaluation of Chemicals used by the Chemistry Division	Krause, Tom	9/15/00
AE-I-194	Venting Sealed Pouches and Other Primary Packages that Contain TRU Waste from Gloveboxes (e.g. Opening Closed Containers and Venting Sealed Pouches)	ANL-E WMO	Revision 1, 1/2/01
AE-I-195	Waste Stream Worksheets	Gary Lasswell	9/01
AE-I-196	TRU Waste Packaging Venting Data Sheets	ANL-E	2000-2001
AE-I-197	Memo to File RE-Interpretation of PO15 Hazardous Waste code Assignment	Tom Krause	06/12/02
AE-I-198	Re-Interpretation of Radionuclide Information for Selected Drums	Tom Krause	06/14/02
AE-I-199	Attachment 12 - Acceptable Knowledge Re-evaluation Checklist, CCP-TP-005, Rev.6	Ben Gutierrez/ Tom Krause	09/04/02
AE-I-200	Physical form worksheet for the AECHDM waste stream	Gary Lasswell	9/18/02
AE-I-201	Radiological properties worksheets	Tom Krause	10/10/02
AE-I-202	ANL-E DR/CT Data for the AECHDM waste stream	Steven Rose	11/18/02
AE-I-203	ANL-E VE Data for the AECHDM waste stream	David B Becker	1/3/03
AE-P-001	Database Documentation of D-212 D&D Gloveboxes	R.E. Nietert	09/02/92
AE-P-002	Building 212 Glove Box Decontamination & Decommissioning Project, Glove Box Detailed Description Document	R. E. Nietert	Revision 0, 8/31/92
AE-P-003	Building 212 D Wing Glove Box Project, Project Management Plan, Quality Assurance Plan	P. S. Carlson, W. E. Stacy	Revision 0, 7/14/1993
AE-P-006	Revision II (Final) to the Argonne National Laboratory - East RCRA Part B Permit Application IL3 890 008 946	ANL-E Env Mgt Ops	Revision II (Final), 8/20/96
AE-P-007	Addendum to the Revision II to the Argonne National Laboratory - East RCRA Part B Permit Application IL3 890 008 946 (Addendum 1)	ANL-E Env Mgt Ops	Revision (II) Addendum, 12/05/95
AE-P-008	Update and Modification of the Argonne National Laboratory - East (ANL-E) Resource Conservation	G. Kulma	Revision II (Update/modificatio

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
	and Recovery Act Part B Permit Application		n), 8/14/98
AE-P-009	RCRA Part B Permit Issued to Department of Energy Argonne National Laboratory - East Facility	Illinois EPA	9/30/97
AE-P-010	RCRA Part B Permit issued to DOE ANL-E Facility, Modification 1	Illinois EPA	Revision 1, 2/8/99
AE-P-011	Waste Handling Procedures Manual	WMO Department	Revision 6, 05/26/00
AE-P-012	Waste Handling Procedures Manual (Chapter 1-4 and Section II)	WMO	Revision 3, 07/98
AE-P-013	Waste Management Handling Procedures Manual; Sections 11-13, Radioactive Wastes	Waste Management Operations Department	Revision 2, 2/94
AE-P-014	Waste Management Handling Procedures Manual; Section 4, Waste Acceptance Quality Assurance Criteria	Waste Management Operations Department	Revision 1, 8/93
AE-P-015	Radioactive Wastes - Radioactive Solid and Liquid Waste Containment, Special Treatment, and Segregation Requirements	Waste Management Operations	Revision 2, February 1992
AE-P-016	Waste Management Handling Procedures Manual; Appendix A, Radioactive Waste Disposal Requisitions	Waste Management Operations Department	Revision 1, 7/91
AE-P-017	Waste Management Handling Procedures Manual, Sections 11,12,14, 15, and Appendix A	Waste Handling Operations Department	Revision 1, 6/26/91
AE-P-018	Waste Management Handling Procedures Manual, Sections 4, 11-15, Appendices A, C-D	Plant Facilities and Services, Waste Management, Building 215	Revision 0, 01/91
AE-P-019	Waste Management Handling Procedures Manual, Radioactive Wastes sections 11, 13, 14, 15, Appendices A, C, D	Waste Management Operations Department	9/89
AE-P-020	Waste Management Handling Procedures Manual, Appendix V, Waste Analysis Plan	Waste Management Operations Department	9/91
AE-P-022	Basic Research in the Mission Agencies	National Science Board	1978
AE-P-023	FY 1995 Budget - Atomic Energy Defense Activities	Federation of American Scientists	5/3/94
AE-P-024	Naval Reactors , Arms Control Office of Intelligence, Questions and Answers.	Federation of American Scientists	03/11/92
AE-P-025	U.S. Nuclear Weapons Research, Development , Testing, and Production, and Naval Nuclear	Stephen I. Schwartz	10/12/99

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
	Propulsion Facilities		
AE-P-026	Department of Energy FY'99 Congressional Budget Table	DOE	3/6/98
AE-P-027	Frontiers: Research Highlights 1946-1996	Argonne National Laboratory	1996
AE-P-028	A Brief History of Materials R&D at Argonne National Laboratory from the Met Lab to Circa 1995	Brian R.T. Frost	9/3/96
AE-P-029	Materials and components Technology Division Research Summary - 1987	R.W. Weeks	11/87
AE-P-030	Materials and Technology Division Annual Review - 1983	B.R.T. Frost	8/83
AE-P-031	Materials Science and Technology Division Annual Review-1982	B.R.T. Frost	11/82
AE-P-032	Annual Progress Report for 1965 Metallurgy Division	Frank G. Foote	1965
AE-P-033	Annual Progress Report for 1964 Metallurgy Division	Frank G. Foote	1964
AE-P-034	Annual Report for 1963 Metallurgy Division	Frank G. Foote	1963
AE-P-035	Annual Report for 1962 Metallurgy division	Frank G. Foote	1962
AE-P-036	Annual Report for 1961 Metallurgy Division	Frank G. Foote	1961
AE-P-037	Annual Report for 1958 for 1958 Metallurgy Division	Franke G. Foote	3/59
AE-P-038	Criticality Hazards Control Building 212, Wing D, Special Facility FD12, Materials Science Division	A.G. Hins	Revision 4, 2/22/79
AE-P-039	Experiment Breeder Reactor-II (EBR-II)	Argonne National Laboratory	6/8/00
AE-P-040	Metal Cooled Reactors	Joseph Gonyeau	08/28/99
AE-P-041	Liquid Metal Fast Breeder; Right Answer, Wrong Question	Adams Atomic Engines	10/95
AE-P-042	Application of Advanced Liquid Metal Reactors to the Destruction of Radioactive Wastes	R.A. Karnesky, et al	8/91
AE-P-043	The Liquid metal Fast Breeder Reactor: Promises and Uncertainties	Energy Research and Development Administration	07/31/75
AE-P-044	Safety Analysis Report - New Brunswick Laboratory	Mason, Robert A	10/90
AE-P-045	Draft Safety Analysis Report - New Brunswick Laboratory	Dallmann, D. Eric	Draft, 01/00
AE-P-047	The Integral Fast Reactor - A Practical Approach to Waste Management	James J. Laidler	9/28/93
AE-P-050	Integral Fast Reactor	UC-Berkeley	6/7/00
AE-P-051	Proliferation Resistance of the Fuel Cycle for the Integral Fast Reactor	Leslie Burns	9/12/93
AE-P-052	Spacelift 2025	Henry D. Baird, et al	8/96
AE-P-053	Nuclear Thermal Propulsion	Federation of	6/8/00

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
		American Scientists	
AE-P-054	Safety Analysis Report Building 205 G-Wing and K-Wing Laboratories	Kot, C. A., Srinvasan, M. G.	Revision 01, 11/14/96
AE-P-055	Chemical Technology Division Annual Technical Report 1997	Chemical Technology Division	6/1/98
AE-P-056	Chemical Technology Division Annual Technical Report 1998	Chemical Technology Division	7/1/99
AE-P-057	Chemical Technology Division Annual Technical Report 1982	Chemical Technology Division	7/1/83
AE-P-058	Chemical Technology Division Annual Technical Report 1983	Chemical Technology Division	4/1/84
AE-P-059	Chemical Technology Division Annual Technical Report 1984	Chemical Technology Division	2/1/85
AE-P-060	Chemical Technology Division Annual Technical Report 1987	Chemical Technology Division	5/1/88
AE-P-061	Chemical Technology Division Annual Technical Report 1989	Chemical Technology Division	3/1/90
AE-P-062	Chemical Technology Division Annual Technical Report 1986	Chemical Technology Division	6/1/87
AE-P-063	Chemical Technology Division Annual Technical Report 1990	Chemical Technology Division	5/1/91
AE-P-064	Chemical Technology Division Annual Technical Report 1991	Chemical Technology Division	3/1/92
AE-P-065	Chemical Technology Division Annual Technical Report 1992	Chemical Technology Division	6/1/93
AE-P-066	Chemical Technology Division Annual Technical Report 1993	Chemical Technology Division	04/01/94
AE-P-067	Chemical Technology Division	ANL-E	06/01/96
AE-P-068	Material Safety Data Sheets	Various Authors	Revision Various, 1980s - 1990s
AE-P-069	ANL-E Waste Management System Database	Waste Management Operations Department	ongoing
AE-P-070	Transuranic Waste Baseline Inventory Report	CAO Technical Assistance Contractor	Revision 2, Dec, 1995
AE-P-071	Institutional PLAN FY 1980-FY 1985	ANL	19/79
AE-P-072	Institutional Plan August 1980	Argonne National Laboratory	08/80
AE-P-073	Institutional Plan FY 1983 - FY 1988	ANL	11/82
AE-P-074	Institutional Plan FY 1984-FY 1989	ANL	11/83
AE-P-075	Institutional Plan FY 1985-1990	ANL	11/84
AE-P-076	Institutional Plan FY 1986 - FY 1991	ANL	11/85

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-P-077	Institutional Plan FY 1987 - FY 1992	ANL	12/86
AE-P-078	Institutional Plan FY 1988 - FY 1993	ANL	12/87
AE-P-079	Institutional Plan FY 1989 - FY 1994	ANL	12/88
AE-P-080	Institutional Plan FY 1990 - FY 1995	ANL	11/89
AE-P-081	Institutional Plan FY 1991 - FY 1996	ANL	11/90
AE-P-082	Institutional Plan FY 1992 - FY 1997	ANL	11/91
AE-P-083	Institutional Plan (FY 1993 - FY 1998)	ANL	8/92
AE-P-084	Institutional Plan FY 1994 - FY 1999	ANL	9/93
AE-P-085	Institutional Plan FY 1995 - FY 2000	ANL	10/94
AE-P-086	Institutional Plan	NA	9/7/00
AE-P-087	Institutional Plan (FY 1998 - FY 2003)	ANL	7/97
AE-P-088	Institutional Plan (1999-2004)	ANL	10/98
AE-P-089	Institutional Plan FY 2000-FY 2005	ANL	10/99
AE-P-090	Argonne National Laboratory - East Site and Location Map	ANL-E	3/97
AE-P-091	Waste Acceptance Criteria for the Waste Isolation Pilot Plant	DOE-WIPP	Revision 4.0, 12/91
AE-P-092	Quality Assurance Plan for ANL-E Waste Management Department	WMO	Revision 1, 8/99
AE-P-093	Quality Assurance Plan for ANL-E Waste Management Department	WMO	Revision 8, 4/96
AE-P-094	Quality Assurance Plan for ANL Waste Management Department	WM Dept	Revision 5, 1/91
AE-P-095	Waste Operations Operating Manual	ANL-E Waste Management Operations	Revision 1, 08/02/99
AE-P-096	Container Management Practices (Chapter 2.12 of Waste Management Operating Procedures Manual)	ANL- Waste Management Operations	Revision 0-3, 7/98-5/5/00
AE-P-097	Waste Management Operating Procedures Manual; Historic Chapter 4.5	Waste Management Operations Department	Revision 0 to 5, 1/91 to 1/00
AE-P-098	Waste Management Operating Procedures Manual; Historic Chapter 4.8	Waste Management Operations Department	1/94 to 9/95
AE-P-099	Waste Management Operating Procedures Manuel : historic Addendum 4 B	ANL-E Enviorment Management Operations	7/23/96
AE-P-100	Waste Management Operating Procedures Manual, Historic Attachment 9.1A	Waste Management Operations Dept.	Revision 0, 4, 2/5/97 to 11/16/99

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-P-101	Waste Management Operating Procedures Manual; Historic Chapter 9.12	Waste Management Operations Department	Revision 0, 2, 8/97 to 7/98
AE-P-102	Waste Management Operating Procedures Manual; Historic Chapter 9.15	Waste Management Operations Department	Revision 0 to 1, 5/99 to 8/99
AE-P-103	Waste Management Operating Procedures Manual; Historic Chapter 12.1	Waste Management Operations Department	12/95 to 5/00
AE-P-104	Building 212 D-Wing Glove Box D&D Project Plan	P. S. Carlson, B. M. Pitman	Revision 0, 11/6/93
AE-P-105	New Brunswick Laboratory ESH Manual, Chapter V, Section I, "Waste Management"	Mansfield, C. L.	Revision 1, June 2000
AE-P-106	Alpha-Gamma Hot Cell Facility (AGHCF) Safety Analysis Report	ANL-E/Energy Technology Division	Revision 0, 1/30/98
AE-P-107	Surveys of Research in the Chemistry Division - 1988	Leon M. Stock, Fred A. Cafasso	1988
AE-P-108	Surveys of Research in the Chemistry Division-1990	Leon M. Stock, Fred A. Cafasso	1990
AE-P-109	Surveys of Research in the Chemistry Division - 1992	L. Stock, F. Cafasso	1992
AE-P-110	Surveys of Research in the Chemistry Division - 1994	Leon M. Stock, Fred A. Cafasso	1994
AE-P-111	Chemical Sciences KC-03 Program Budget - Fiscal Years 1997, 1988, and 1999	ANL-E/Chemistry Division	4/97
AE-P-112	Environmental Management (Defense Funds) Field Work Proposals - Fiscal Years 2000, 2001, and 2002	ANL-E	4/00
AE-P-113	Final Report for the Light Water Breeder Reactor Proof-of-Breeding Analytical Support Project	D.G. Graczyk, et al	5/87
AE-P-114	Alpha-Gamma Hot Cell Facility (AGHCF) Operations Manual	L.A. Neimark	6/89
AE-P-115	About Yucca Mountain	EPA	8/00
AE-P-116	Bettis Atomic Power Laboratory	BAPL	7/00
AE-P-117	History; INEEL	INEEL	8/00
AE-P-118	SRS Mission and Vision	SRS	8/00
AE-P-119	About Sandia	SNL	8/00
AE-P-120	Los Alamos National Laboratory Mission	LANL	8/00
AE-P-121	Oak Ridge National Laboratory; About ORNL	ORNL	8/00
AE-P-122	Creating the Laboratory's Future (LLNL)	LLNL	8/00

Attachment 1

Source Document Tracking Number	Title	Author	Document Revision # and Date
AE-P-123	Hanford; Welcome to Hanford	Hanford Site	8/00
AE-P-124	Chemical Technology Division; Vision, Mission, and Management Philosophy of CMT	CMT	9/18/00
AE-P-125	Chemistry Division; Strategic Research at the Frontiers of Chemistry	ANL-E/CHM	8/24/00
AE-P-126	The Waste Isolation Pilot Plant Land Withdrawal Act, Section 2, Definitions	US Congress	10/92
AE-P-127	Argonne National Laboratory-East TRU Waste AK Report	ANL-E WMO	Revision 0, 9/29/00
AE-P-128	Lead Shielding for Radioactive Waste is a RCRA Solid Waste	USEPA	4/30/91
AE-P-129	Defense Waste Guidance	Don Watkins, Manager National TRU Program	10/9/96
AE-U-1	RCRA Part A Application for ANL-E	DOE/Argonne	12/18/95
AE-U-2	Hazardous Waste Permit Application Part A (for ANL-E)	DOE/Arogonne	12/19/90
AE-U-3	Reference Drawing, Building 212 Second Floor, Wing "D", Site "D"	NA	7/23/69
AE-U-4	IPABS Summary Report for ANL-E TRU Waste Streams	DOE	8/17/00
AE-U-5	General Description of Building 200	A. Youngs	8/14/00
AE-U-7	Waste Stream Inventory Work Sheets	David B. Becker B. Billett D. Hecker	10/2/03

LEGEND:

The type of source document can be determined by the source document tracking number. Each tracking number is designated as follows:

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		Internal Procedure or Note	
		Correspondence	
		Discrepancy	
	# =	A unique document tracking number	

CHARACTERIZATION INFORMATION SUMMARY

AECHHM, LOT 1

TABLE OF CONTENTS

Characterization Information Summary Cover Page..... 2

Correlation of Container Identification Numbers to Batch Data Report Numbers 4

HSG UCL_{90} Evaluation Form.....5

Total VOCs UCL_{90} Evaluation Form 7

Total SVOCs UCL_{90} Evaluation Form..... 9

Total Metals UCL_{90} Evaluation Form.....10

Headspace Gas Summary Data 11

Total VOCs Summary Data.....13

Total SVOCs Summary Data.....14

RTR/VE Summary of Prohibited Items and AK Confirmation 15

Reconciliation with Data Quality Objectives 16

CIS
11-20-03
Page 1

CCP Characterization Information Summary Cover Page

WSP: # AECHHM Lot #: 1

AK Expert Review: David B Becker Date: 11/20/03

STR Review (if necessary): _____ Date: _____

SPQAO Review: _____ Date: 11/20/03

SPM Review: _____ Date: 11-20-03

SPQAO signature indicates that the information presented in this package is consistent with analytical batch reports.

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

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

List of procedures used:
Visual Examination:
CCP-TP-013, rev. 13, CCP Waste Visual Examination and Repackaging, May 30, 2003.
CCP-TP-013, rev. 12, CCP Waste Visual Examination and Repackaging, January 26, 2003.

Headspace Gas Analysis:
CCP-TP-031, rev. 12, CCP Headspace Gas Sampling Using Automated Manifold, February 4, 2003.

CCP-TP-034, rev. 10, CCP HSG Data Generation and Batch Data Reporting, June 2, 2003.
CCP-TP-034, rev. 9, CCP HSG Data Generation and Batch Data Reporting, February 4, 2003.

Nondestructive Assay:
CCP-TP-017, rev. 14, CCP APNEA Data Analysis, January 23, 2003

CCP-TP-018, rev. 10,CCP APNEA Waste Drum Assay Operations, August 28, 2002

CCP-TP-036, rev. 13, CCP WIT Nondestructive Assay, October 11, 2002

CIS
11-20-03
Page 2

CCP Characterization Information Summary Cover Page

CCP-TP-038, rev. 5, CCP WIT Nondestructive Assay Empirical Data Quality Measurements, September 5, 2002

Radiography:
CCP-TP-045, rev. 6, CCP RTR #5 Radiography Inspection Operating Procedure, January 31, 2003

Project Level Data Validation/DQO Reconciliation:
CCP-TP-001, rev. 10, CCP Project Level Data Validation and Verification, August 28, 2003
CCP-TP-001, rev. 9, CCP Project Level Data Validation and Verification, July 10, 2003
CCP-TP-001, rev. 8, CCP Project Level Data Validation and Verification, February 3, 2003

CCP-TP-002, rev. 13, CCP Reconciliation of DQOs and Reporting Characterization Data, June 27, 2003

CCP-TP-003, rev. 14, CCP Sampling Design and Data Analysis for RCRA Characterization, September 3, 2003
CCP-TP-003, rev. 13, CCP Sampling Design and Data Analysis for RCRA Characterization, June 28, 2003

CCP-TP-005, rev. 13, CCP Acceptable Knowledge Documentation, November 18, 2003
CCP-TP-005, rev. 12, CCP Acceptable Knowledge Documentation, March 26, 2003

CCP-TP-30, rev. 9, CCP WWIS Data Entry and TRU Waste Certification, September 19, 2003

WAP Certification:
CCP-PO-001, rev. 6, CCP Transuranic Waste Characterization Quality Assurance Project Plan, June 11, 2003
CCP-PO-001, rev. 5, CCP Transuranic Waste Characterization Quality Assurance Project Plan, February 5, 2003
CCP-PO-001, rev. 4, CCP Transuranic Waste Characterization Quality Assurance Project Plan, May 31, 2002

CCP-PO-002, rev. 7, CCP Transuranic Waste Certification Plan, November 20, 2003
CCP-PO-002, rev. 6, CCP Transuranic Waste Certification Plan, June 11, 2003
CCP-PO-002, rev. 5, CCP Transuranic Waste Certification Plan, February 12, 2003

CCP-PO-007, rev. 7, CCP/ANL-E Interface Document, August 21, 2003
CCP-PO-007, rev. 6, CCP/ANL-E Interface Document, January 26, 2003

CIS
11-20-03
Page 3

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

WSP: # AECHHM Lot #: 1

Container ID Number	On-Line Headspace Gas BDR	NDA BDR	RTR BDR	VE BDR	Solids Sampling BDR	Solids Analytical BDR	Load Management/ Overpack Yes
AE24428	AEHSG01030403a	AEAPNEA031003a	AERTR025	AEMover031903h	WCS-0305	ALD03015M ALD03011V ALD03013N ALD03011S	
AE24454	AEHSG01030403a	AEAPNEA031003a	AERTR025	AEMover032003a	WCS-0305	ALD03015M ALD03011V ALD03013N ALD03011S	
AE24455	AEHSG01030403a	AEAPNEA031003a	AERTR025	AEMover031903g	WCS-0305	ALD03015M ALD03011V ALD03013N ALD03011S	
AE24463	AEHSG01030403a	AEAPNEA031303a	AERTR025	AEMover031903i	WCS-0305	ALD03015M ALD03011V ALD03013N ALD03011S	
AE24464	AEHSG01030403a	AEAPNEA031303a	AERTR025	AEMover031903f	WCS-0305	ALD03015M ALD03011V ALD03013N ALD03011S	
AETD97-0141	AEHSG01030503a	AEAPNEA031303a	AERTR025	AEMover031903c	WCS-0306	ALD03016M ALD03012V ALD03014N ALD03012S	
AETD97-0143	AEHSG01030503a	AEAPNEA031303a	AERTR025	AEMover031903b	WCS-0306	ALD03016M ALD03012V ALD03014N ALD03012S	
AETD98-0166	AEHSG01030503a	AEAPNEA031303a	AERTR025	AEMover031903a	WCS-0306	ALD03016M ALD03012V ALD03014N ALD03012S	
AETD98-0219	AEHSG01030403a	AEAPNEA031303a	AERTR025	AEMover031903e	WCS-0306	ALD03016M ALD03012V ALD03014N ALD03012S	
AETD98-0220	AEHSG01030403a	AEAPNEA031303a	AERTR025	AEMover031903d	WCS-0306	ALD03016M ALD03012V ALD03014N ALD03012S	

Signature of Site Project Manager — Steven Rose, Printed Name — 11-20-03, Date

CIS
11-20-03
Page 4

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: AECHHM

Waste Stream Lot Number: 1

ANALYTE	Transform Data Used (No, Data-Log, SQTI, other)	# Samples	# Samples above MDL	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
Benzene	No	10	0	0.90	0.90	0		10	N/A		
Bromoform	No	10	0	0.95	0.95	0		10	N/A		
Carbon tetrachloride	No	10	0	1.00	1.00	0		10	N/A		
Chlorobenzene	No	10	0	1.00	1.00	0		10	N/A		
Chloroform	No	10	0	1.20	1.20	0		10	N/A		
Cyclohexane[a]	N/A	0	—	—	—	—	—	—	N/A		
1,1-Dichloroethane	No	10	0	1.10	1.10	0		10	N/A		
1,2-Dichloroethane	No	10	0	1.00	1.00	0		10	N/A		
1,1-Dichloroethylene	No	10	0	1.30	1.30	0		10	N/A		
cis-1,2-Dichloroethylene	No	10	0	0.80	0.80	0		10	N/A		
trans-1,2-Dichloroethylene	No	10	0	0.75	0.75	0		10	N/A		
Ethyl benzene	No	10	0	1.05	1.05	0		10	N/A		
Ethyl ether	No	10	0	1.15	1.15	0		10	N/A		
Formaldehyde[c]	N/A	0	—	—	—	—	—	— 10	N/A		
Hydrazine[d]	N/A	0	—	—	—	—	—	— 10	N/A		
Methylene chloride	No	10	0	1.10	1.10	0		10	N/A		
1,1,2,2-Tetrachloroethane	No	10	0	1.25	1.25	0		10	N/A		
Tetrachloroethylene	No	10	0	1.00	1.00	0		10	N/A		
Toluene	No	10	0	1.00	1.00	0		10	N/A		
1,1,1-Trichloroethane	No	10	0	0.90	0.90	0		10	N/A		
Trichloroethylene	No	10	0	0.95	0.95	0		10	N/A		
1,1,2-Trichloro-1,2,2-trifluoroethane	No	10	0	1.00	1.00	0		10	N/A		
1,2,4-Trimethylbenzene[a]	N/A	0	—	—	—	—	—	—	N/A		
1,3,5-Trimethylbenzene[a]	N/A	0	—	—	—	—	—	—	N/A		

CIS
11-20-03
page 5

CCP Headspace Gas UCL_{90} Evaluation Form

WSPF #: AECHHM

Waste Stream Lot Number: 1

ANALYTE	Transform Data Used (No, Data-Log, SQTI, other)	# Samples	# Samples above MDL	Maximum (ppmv)	Mean (ppmv)	SD (ppmv)	UCL_{90} (ppmv)	PRQL (ppmv)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL Yes	EPA Code
m-Xylene[b]	No	10	0	2.00	2.00	0		10	N/A		
p-Xylene[b]	No	10	0	2.00	2.00	0		10	N/A		
o-Xylene	No	10	0	0.85	0.85	0		10	N/A		
Acetone	No	10	0	10.5	10.5	0		100	N/A		
Butanol	No	10	0	8.50	8.50	0		100	N/A		
Methanol	No	10	0	10.0	10.0	0		100	N/A		
Methyl ethyl ketone	No	10	0	10.5	10.5	0		100	N/A		
Methyl isobutyl ketone	No	10	0	10	10.0	0		100	N/A		

[a]These compounds are from the TRAMPAC and are flammable VOCs that do not appear in the QAPjP or the WIPP WAP. These are not part of the target analysis list, but samples may be analyzed for these compounds.
[b]These xylene isomers cannot be resolved by the analytical methods employed in the program. M-xylene and p-xylene will be reported as "Total m-p-Xylene."
[c]Required only for homogenous solids and soil/gravel waste from Los Alamos National Laboratory and Savannah River Site.
[d]Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

Comments:

When the "Log" transformed data is provided, it is represented in Log Ln.

CIS
11-20-03
Page 6

CCP Totals Analysis VOC UCL90 Evaluation Form

WSPF # AECHHM **Waste Stream Lot Number:** 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples	# Samples above MDL	Maximum (mg/kg)	Mean (mg/kg)	SD (mg/kg)	UCL 90 (mg/kg)	PRQL (mg/kg)	Transformed PRQL (N/A or Value)	UCL 90 > PRQL YES	EPA Code
Benzene	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
Bromoform	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
Carbon disulfide	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
Carbon tetrachloride	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
Chlorobenzene	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
Chloroform	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
1,4-Dichlorobenzene [c]	———	———	———	———	———	———	———	10	N/A		
ortho-Dichlorobenzene [c]	———	———	———	———	———	———	———	10	N/A		
1,2-Dichloroethane	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
1,1-Dichloroethylene	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
trans 1,2-Dichloroethylene	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
Ethyl benzene	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
Methylene choloride	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
1,1,2,2-Tetrachloroethane	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
Tetrachloroethylene	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
Toluene	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
1,1,1-Trichloroethane	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
1,1,2,-Trichloroethane	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
Trichoroethylene	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
Trichlorofluoromethane	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
1,1,2-Trichloro-1,2,2-trifluoroethane	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
Vinyl chloride	Log	10	0	-2.25	-2.39	0.08	-2.35	4	2.3		
m-Xylene	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		
p-Xylene	Log	10	0	-1.54	-1.69	0.08	-1.66	10	2.3		

CLS 11-20-03 Page 7

CCP Totals Analysis VOC UCL90 Evaluation Form

WSPF # AECHHM **Waste Stream Lot Number:** 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples	# Samples above MDL	Maximum (mg/kg)	Mean (mg/kg)	SD (mg/kg)	UCL 90 (mg/kg)	PRQL (mg/kg)	Transformed PRQL (N/A or Value)	UCL 90 > PRQL YES	EPA Code
o-Xylene	Log	10	0	-2.25	-2.39	0.08	-2.35	10	2.3		
Acetone	Log	10	1	2.3	0.26	0.72	0.57	100	4.61		
Butanol	Log	10	1	2.48	0.29	0.77	0.63	100	4.61		
Ethyl ether	No	10	0	1.7	1.57	0.09	1.6	100	N/A		
Formaldehyde [a]	———	———	———	———	———	———	———	100	N/A		
Hydrazine [b]	———	———	———	———	———	———	———	100	N/A		
Isobutanol	SQRT	10	0	1.07	1.02	0.03	1.03	100	10		
Methanol	No	10	0	1.7	1.57	0.09	1.6	100	N/A		
Methyl ethyl ketone	Log	10	2	2.3	0.79	0.72	1.11	100	4.61		
Pyridine	SQRT	10	0	1.07	1.02	0.03	1.03	100	10		

(a) Required only for homogenous solids and soil/gravel waste from Los Alamos National Laboratory and Savannah River Site.
(b) Required only for homogenous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.
(c) Can also be analyzed as semi-volatile organic compound. If analyzed as a semi-volatile, the QAOs of Table B3-6 apply.

Comments:
When the "Log" transformed data is provided, it is represented in Log Ln.

CLS
11-26-03
Page 8

CCP Totals Analysis Semi-VOC UCL_{90} Evaluation Form

WSPF #: AECHHM **Waste Stream Lot Number:** 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples	# Samples above MDL	Maximum (mg/kg)	Mean (mg/kg)	SD (mg/kg)	UCL_{90} (mg/kg)	PRQL (mg/kg)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL YES	EPA Code
2-Methylphenol (cresols)	No	10	0	0.2	0.15	0.05	0.17	40	N/A		
3&4 -Methylphenol (cresols)	No	10	0	0.2	0.2	0	0	40	N/A		
1,4-Dichlorobenzene [a]	No	10	0	0.2	0.15	0.05	0.17	40	N/A		
ortho-Dichlorobenzene [a]	No	10	0	0.2	0.15	0.05	0.17	40	N/A		
2,4-Dinitrophenol	No	10	0	0.2	0.15	0.05	0.17	40	N/A		
2,4-Dinitrotoluene	No	10	0	0.15	0.13	0.03	0.14	2.6	N/A		
Hexachlorobenzene	No	10	0	0.15	0.13	0.03	0.14	2.6	N/A		
Hexachloroethane	No	10	0	0.2	0.15	0.05	0.17	40	N/A		
Nitrobenzene	No	10	0	0.2	0.15	0.05	0.17	40	N/A		
Polychlorinated Biphenyls [b]	—	—	—	—	—	—	—	40	N/A		
Aroclor 1016 [b]	—	—	—	—	—	—	—	40	N/A		
Aroclor 1221 [b]	—	—	—	—	—	—	—	40	N/A		
Aroclor 1232 [b]	—	—	—	—	—	—	—	40	N/A		
Aroclor 1242 [b]	—	—	—	—	—	—	—	40	N/A		
Aroclor 1248 [b]	—	—	—	—	—	—	—	40	N/A		
Aroclor 1254 [b]	—	—	—	—	—	—	—	40	N/A		
Aroclor 1260 [b]	—	—	—	—	—	—	—	40	N/A		
Pentachlorophenol	No	10	0	0.1	0.1	0	0	40	N/A		
Pyridine [a]	—	—	—	—	—	—	—	40	N/A		

[a] Can also be analyzed as a volatile organic compound.
[b] Required only for waste matrix code S3220 (organic sludges).

CIS
11-20-03
Page 9

CCP Totals Analysis Metals UCL_{90} Evaluation Form

WSPF #: AECHHM **Waste Stream Lot Number:** 1

ANALYTE	Transform Data Used (No, Data-Log, SQRT, other)	# Samples	# Samples above IDL	Maximum (mg/kg)	Mean (mg/kg)	SD (mg/kg)	UCL_{90} (mg/kg)	PRQL (mg/kg)	Transformed PRQL (N/A or Value)	UCL_{90} > PRQL YES	EPA Code
Antimony	No	10	4	1	0.51	0.28	0.64	100	N/A		
Arsenic	SQRT	10	5	3.01	1.32	1.03	1.77	100	10		
Barium	Log	10	10	6.09	4.67	0.97	5.09	2000	7.6		
Beryllium	Log	10	10	-0.29	-0.87	0.37	-0.71	100	4.61		
Cadmium	Log	10	10	8.16	4.97	2.78	6.19	20	3	Yes	D006
Chromium	Log	10	10	5.6	3.96	1.52	4.63	100	4.61	Yes	D007
Lead	Log	10	9	2.83	0.88	1.11	1.36	100	4.61		
Mercury	Log	10	8	0.18	-3.36	1.67	-2.63	4	1.39		
Nickel	Log	10	10	6.17	3.4	1.72	4.15	100	4.61		
Selenium	No	10	0	0.15	0.15	0	0	20	N/A		
Silver	Log	10	6	1.55	-0.87	1.45	-0.23	100	4.61		
Thallium	No	10	2	0.85	0.41	0.22	0.5	100	N/A		
Vanadium	Log	10	10	3.4	1.69	1.08	2.16	100	4.61		
Zinc	Log	10	10	7.31	4.41	1.91	5.25	100	4.61	Yes	

Comments: When the "Log" transformed data is provided, it is represented in Log Ln.

CIS
11-20-03
Page 10

CCP Headspace Gas Summary Data

WSP: # AECHHM Lot (s) #: 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
Hexamethyl-disiloxane	250	2	20

C15
11-20-03
Page 11

CCP Headspace Gas Summary Data

WSP: # AECHHM Lot (s) #: 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected

Data Confirms Acceptable Knowledge? Yes ☒ No ☐

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

SPM Signature _____ Date: 11-20-03

CIS
11-20-03
Page 12

CCP Total VOCs Summary Data

WSP: # AECHHM Lot(s) #: 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
No TICs identified			

Data Confirms Acceptable Knowledge? Yes ☒ No ☐

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

SPM Signature: _____ Date: 11-20-03

CIS
11-20-03
Page 13

CCP Total SVOCs Summary Data

WSP: # AECHHM Lot(s) #: 1

Tentatively Identified Compound	Maximum Observed Estimated Concentrations (ppmv)	# Samples Containing TIC	% Detected
bis(2-ethylhexyl)phthalate	0.62 mg/kg	1	10%

Does data confirm Acceptable Knowledge? Yes ☒ No ☐

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

SPM Signature: Date: 11-20-03

C15
11-20-03
Page 14

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

WSP #: AECHHM Lot #: 1

Container Number	RTR Prohibited Items[a]	Visual Examination Prohibited Items[a]	AK Confirmation[bc]
AE24428	N/A*	None	Yes
AE24454	N/A*	None	Yes
AE24455	N/A*	None	Yes
AE24463	N/A*	None	Yes
AE24464	N/A*	None	Yes
AETD97-0141	N/A*	None	Yes
AETD97-0143	N/A*	None	Yes
AETD98-0166	N/A*	None	Yes
AETD98-0219	N/A*	None	Yes
AETD98-0220	N/A*	None	Yes
	* Since RTR typically can not see through this Summary Category Group waste, RTR was performed on each drum only to confirm there was no water in the annulus.		

a. See Batch Data Reports
b. Attachment 10 of CCP-TP-005, *CCP AcceptableDocumentation*
c. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).

Site Project Manager Signature | Printed Name: Steven Rose | Date: 11-20-03

CIS
11-20-03
Page 15

CCP Reconciliation with Data Quality Objectives

SPQAO Sampling Completeness

RTR:
Number of valid samples: N/A (1) Number of total samples analyzed: N/A (1)
Percent Complete: N/A (1) (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: 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 SVOC:
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 Metals:
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%)

SPQAO Signature and Date: John F. Gia 11·20·2003

I certify that sufficient data have been collected to determine the following Program-required waste parameters:

CIS
11-20-03
Page 16

CCP Reconciliation with Data Quality Objectives

WSP#: AECHHM Lot#: Lot 1

	Y/N/NA	Reconciliation Parameter
1.	Y	Waste Matrix Code.
2.	Y (2)	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.	Y	Potential Flammability. Is there sufficient AK or analytical data to demonstrate that the waste meets the potential flammability limits (Headspace Gas, BDR and Summary Sheet)?
6.	Y	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 CCP-TP-003-A3, and additional EPA Hazardous Waste codes were assigned as required. Samples were randomly collected (when appropriate).
7a.	Y	Mean concentrations, UCL_{90} values for the mean concentration, standard deviations, and the number of samples collected for **total VOCs** were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003-A4, and additional EPA Hazardous Waste codes were assigned as required. Samples were randomly collected.
7b.	Y	Mean concentrations, upper 90% confidence limit (UCL_{90}) values for the mean concentration, standard deviations, and the number of samples collected for **total SVOCs** were calculated and compared with the program required quantitation limits and regulatory thresholds, as reported in the Characterization Information Summary, CCP-TP-003-A5, and additional EPA Hazardous Waste Codes were assigned as required. Samples were randomly collected.
7c.	Y	Mean concentrations, upper 90% confidence limit (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-A6, and additional EPA Hazardous Waste codes were assigned as required. Samples were randomly collected.
8.	Y	The data demonstrates whether the waste stream exhibits are toxicity characteristic under 40 CFR 261, Subpart C.

CIS
11-20-03
Page 17

CCP Reconciliation with Data Quality Objectives

WSP#: AECHHM Lot#: Lot 1

	Y/N/NA	Reconciliation Parameter			
9	Y	Waste stream can be classified as hazardous or nonhazardous at the 90-percent confidence level.			
10.	N/A (3)	Sufficient number of waste containers have been visually examined to determine the UCL_{90} for the miscertification rate is less than 14%.			
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.			
	Y	The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.			
			Completeness	Comparability	Representativeness
		Radiography	N/A (1)	N/A (1)	N/A (1)
		Headspace Gas Sampling And Analysis	N/A (4)	N/A (4)	N/A (4)
		Headspace Gas Analysis	Y	Y	Y
14.		Solids Sampling	Y	Y	Y
		Total VOCs	Y	Y	Y
		Total SVOCs	Y	Y	Y
		Total Metals	Y	Y	Y

Signature of Site Project Manager — Steven Rose, Printed Name — 11-20-03, Date

(1) VE was performed on all drums in lieu of Radiography. However, the absence of water in the annulus was confirmed by RTR.
(2) Waste Material Parameter Weights were determined during VE.
(3) The drums contained in the AECHHM waste stream were visually examined in lieu of radiography. Because VE was performed in lieu of radiography, a miscertification rate was not calculated.
(4) On-Line-Sampling System.

CIS
11-20-03
Page 18