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

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NMED
Hazardous Waste Bureau

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

Subject: Review of Idaho National Laboratory - Central Characterization Program Waste Stream Profile Form Number ID-AECHHM, Revision 1, *Argonne Solidified Inorganic and Organic Liquids*

Dear Mr. Kieling:

The Department of Energy, Carlsbad Field Office has approved the Waste Stream Profile Form (WSPF) Number ID-AECHHM, Revision 1, *Argonne Solidified Inorganic and Organic Liquids* for the Central Characterization Program at the Idaho National Laboratory.

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

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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

Sincerely,

Jose R. Franco

Jose R. Franco, Manager
Carlsbad Field Office

Enclosure

cc: w/enclosure

S. Holmes, NMED	*ED
T. Kliphuis, NMED	ED
R. Maestes, NMED	ED
C. Smith, NMED	ED
RCRA Chronology Record	ED
WIPP Operating Record	ED
CBFO M&RC	

*ED denotes electronic distribution

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CBFO:NTP:JRS:GL:14-1840:UFC 5900.00

Attachment 2 – CCP Waste Stream Profile Form

(1) Waste Stream Profile Number: ID-AECHHM, Revision 1						
(2) Generator site name: Idaho National Laboratory				(3) Generator site EPA ID: ID4890008952		
(4) Technical contact: Rich Kantrowitz				(5) Technical contact phone number: 575-234-7511		
(6) Date of audit report approval by New Mexico Environment Department (NMED): March 11, 2013						
(7) Title, version number, and date of documents used for WIPP-WAP Certification: CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, Revision 21, May 31, 2013; CCP-PO-002, CCP Transuranic Waste Certification Plan, Revision 27, May 31, 2013; CCP-PO-024, CCP/INL Interface Document, Revision 14, June 28, 2013						
(8) Did your facility generate this waste? YES			NO	X		
(9) If no, provide the name and EPA ID of the original generator: Argonne - IL3890008946						
Waste Stream Information						
(10) WIPP ID: AE-T003				(11) Summary Category Group: S3000 – Homogeneous Solids		
(12) Waste Matrix Code Group: Solidified Inorganics, Solidified Organics				(13) Waste Stream Name: Argonne Solidified Inorganic and Organic Liquids		
(14) Description from the ATWIR: Waste stream consists of mixed homogeneous solids generated during the neutralization and solidification of aqueous and organic liquids originating from Argonne laboratory and maintenance operations.						
(15) Defense TRU Waste:	YES	X	NO			
(16) Check One:	CH	X	RH			
(17) Number of SWBs: NA (17a) Number of SLB2: NA	(18) Number of Drums: 32 55-gallon drums				(19) Number of Canisters NA	
(20) Batch Data Report numbers supporting this waste stream characterization: See Characterization Information Summary (CIS) Correlation of Container Identification Numbers.						
(21) List applicable EPA Hazardous Waste Numbers: D004, D005, D006, D007, D008, D009, D010, D011, D019, D027, D028, D029, D030, D037, F002, F004 and F005						
(22) Applicable TRUCON Content Numbers: AE111 / AE211, SQ111 / SQ211, ID132 / ID232, SQ113 / SQ213						
(23)**Acceptable Knowledge Information**						
(For the following, enter the supporting documentation used [i.e., references and dates])						
Required Program Information						
(23A) Map of site: CCP-AK-INL-025, Revision 2, July 9, 2013, Figures 1, 2, 3 and 4						
(23B) Facility mission description: CCP-AK-INL-025, Revision 2, July 9, 2013, Section 4.2						
(23C) Description of operations that generate waste: CCP-AK-INL-025, Revision 2, July 9, 2013, Section 4.4						
(23D) Waste identification/categorization schemes: CCP-AK-INL-025, Revision 2, July 9, 2013, Section 4.5.2						
(23E) Types and quantities of waste generated: CCP-AK-INL-025, Revision 2, July 9, 2013, Section 4.5.1						
(23F) Correlation of waste streams generated from the same building and process, as applicable: CCP-AK-INL-025, Revision 2, July 9, 2013, Section 4.5.3						
(24) Waste certification procedures: CCP-TP-030, Revision 33, November 19, 2013						
(25) Required Waste Stream Information						
(25A) Area(s) and building(s) from which the waste stream was generated: CCP-AK-INL-025, Revision 2, July 9, 2013, Section 6.1						

(25B) Waste stream volume and time period of generation: CCP-AK-INL-025, Revision 2, July 9, 2013, Section 6.2			
(25C) Waste generating process description for each building: CCP-AK-INL-025, Revision 2, July 9, 2013, Section 6.3			
(25D) Waste Process flow diagrams: NA			
(25E) Material inputs or other information identifying chemical/radionuclide content and physical waste form: CCP-AK-INL-025, Revision 2, July 9, 2013, Section 6.4			
(25F) Waste Material Parameter Weight Estimates per unit of waste: See Table entitled "Waste Stream ID-AECHHM Waste Material Parameter Estimates" in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM.			
(26) Which Defense Activity generated the waste:			
X	Weapons activities including defense inertial confinement fusion	X	Naval reactors development
X	Verification and control technology	X	Defense research and development
X	Defense nuclear waste and materials by-products management	X	Defense nuclear materials production
X	Defense nuclear materials security and safeguards and security investigations		
(27) Supplemental Documentation:			
(27A) Process design documents: See C138 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			
(27B) Standard operating procedures: See AE-I-001, AE-I-004, AE-I-005, AE-I-006, AE-I-009, AE-I-028, AE-I-030, AE-I-035, AE-I-040, AE-I-044, AE-I-046, AE-I-051, AE-I-052, AE-I-070, AE-I-071, AE-I-073, AE-I-078, AE-I-084, AE-I-106, AE-I-107, AE-I-109, AE-I-124, AE-I-126, AE-I-128, AE-I-130, AE-I-131, AE-I-148, AE-I-149, AE-I-150, AE-I-192, AE-I-193, AE-P-099, AE-P-106, C012, C812, C2006, P004, P038, P039, P068, P069, P070, P3001, P3002, P3003, P3004, P327, P329, P389, P392, P484, P485, P487, P489, P490, P507, P520, P521, P532, P536, P537, P539, P557, P816, P817, P822, P826, P829, U065, U085 and U2010 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			
(27C) Safety Analysis Reports: See AE-I-050, AE-P-044, AE-P-045, AE-P-106, C2004, P004, P2018 and P380 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			
(27D) Waste packaging logs: See AE-I-077, C333, DR3003, DR3004, P3001, P3002, P3003, U015, U017, U018, U019, U021, U022, U041, U3001 and U3003 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			
(27E) Test plans/research project reports: See AE-I-008, AE-I-050, AE-I-055, AE-I-181, AE-I-184, AE-I-186, AE-I-187, AE-P-058, AE-P-059, AE-P-060, AE-P-061, AE-P-062, AE-P-063, AE-P-064, AE-P-065, AE-P-066, AE-P-067, AE-P-106, C2004, C2005, C2007, P2003, P2017, P2021, P2022, P2023, P2026, P2028, P607, P815, P816, P817 and P827 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			
(27F) Site databases: See U076, U2002 and U3005 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			
(27G) Information from site personnel: See AE-C-003, AE-C-004, AE-C-006, AE-C-011, AE-C-013, AE-C-017, AE-C-019, AE-C-022, AE-C-024, AE-C-027, AE-C-032, AE-C-035, AE-C-036, AE-C-037, AE-C-042, AE-I-002, AE-I-012, AE-I-029, C066, C137, C2009, C3003, C3004 and U3001 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			
(27H) Standard industry documents: See C016 and P004 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			
(27I) Previous analytical data: See C035, C116, C160, C3004, C333 and P3004 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			
(27J) Material safety data sheets: See AE-C-022, AE-I-052, C143, U072 and U076 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents			

Confirmation Information	
For the following, when applicable, enter procedure title(s), number(s) and date(s)	
(27K) Sampling and analysis data from comparable/surrogate Waste: See C116, C143, C160, C3002, DR3001, P004, P023 and U3006 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents	
(27L) Laboratory notebooks: See AE-I-015 in Summation of Aspects of AK Summary Report: Waste Stream ID-AECHHM, Source Documents	
(28)	Radiography: CCP Standard Real-Time Radiography (RTR) Inspection Procedure, CCP-TP-053, Revision 14, September 25, 2013 and Real-Time Radiography Examinations (Certification Scans), INST-OI-12, Revision 51, April 19, 2013
	Visual Examination: NA

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

This WSPF was revised primarily to update the Waste material Parameters. The revision also includes updates to the waste stream volume, dates of generation, waste stream description, waste generating processes, Waste Stream Material and Chemical Inputs table and radionuclide information. There were no new Hazardous Waste Numbers added.

Reviewed by AK Expert: YES [X] **Date:** 12/11/2013

Reviewed by STR (if necessary): YES [X] N/A [ ] **Date:** 1/7/2014

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.

Signature of Site Project Manager	Richard Kantrowitz Printed Name	1/23/2014 Date

CHARACTERIZATION INFORMATION SUMMARY

WSPF# ID-AECHHM Rev. 1

Lot 3*

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* See comments on page 7

CCP Characterization Information Summary Cover Page

Waste Stream #	ID-AECHHM	Lot #:	3
AK Expert Review:	N/A	Date:	N/A
SPM Review:	Richard Kantrowitz	Date:	01/21/2014

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:

Non Destructive Assay (NDA):

CCP-TP-109	Rev 9	02/14/2013	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-109	Rev 8	06/10/2011	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-109	Rev. 7	01/26/2011	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-109	Rev 6	03/16/2009	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-109	Rev 5	11/16/2006	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-109	Rev. 4	09/21/2005	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-109	Rev 3	04/12/2005	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-109	Rev. 2	03/18/2005	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-109	Rev 1	05/06/2004	CCP Data Reviewing, Validating, and Reporting Procedure
CCP-TP-115	Rev. 5.1	04/08/2013	CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure
CCP-TP-115	Rev 4	06/24/2009	CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure
CCP-TP-115	Rev 3	12/08/2008	CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure
CCP-TP-115	Rev 2	00/12/2006	CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure
CCP-TP-115	Rev 1	04/15/2005	CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure
CCP-TP-115	Rev 0	02/27/2005	CCP SWEPP Gamma-Ray Spectrometer (SGRS) Operating Procedure

Real Time Radiography (RTR):

INST-OI-12	Rev. 51	04/19/2013	Real-Time Radiography Examinations (Certification Scans)
INST-OI-12	Rev. 50	02/28/2013	Real-Time Radiography Examinations (Certification Scans)
CCP-TP-053	Rev 14	09/25/2013	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev. 13	05/14/2013	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev 12	08/22/2012	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
CCP-TP-053	Rev 11	07/20/2011	CCP Standard Real-Time Radiography (RTR) Inspection Procedure

Project Level Data Validation / DQO Reconciliation:

CCP-TP-001	Rev 21	06/06/2013	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev 20	09/27/2012	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev 19	12/29/2010	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev 18	08/09/2010	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev 17	09/24/2007	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev 16	04/26/2007	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 15	11/22/2006	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 14	11/16/2006	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev 13	07/21/2006	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev. 12	05/25/2006	CCP Project Level Data Validation and Verification
CCP-TP-001	Rev 11	03/23/2005	CCP Project Level Data Validation and Verification
CCP-TP-002	Rev 26	06/19/2013	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev 25	02/11/2013	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev 24	12/28/2011	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev 23	12/29/2010	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 22	06/30/2010	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 21	06/04/2009	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev 20	06/18/2008	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 19	12/22/2006	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev 18	11/16/2006	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev 17	10/10/2006	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev. 16	08/06/2006	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev 15	06/18/2005	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-002	Rev 14	03/29/2005	CCP Reconciliation of DQOs and Reporting Characterization Data
CCP-TP-005	Rev 26	06/12/2013	CCP Acceptable Knowledge Documentation

CCP-TP-005	Rev 25	06/19/2013	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev 24	11/28/2011	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev 23	06/30/2011	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev 22	04/21/2011	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev 21	12/29/2010	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev 20	11/01/2010	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 19	07/06/2010	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 18	11/16/2006	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev. 17	06/05/2006	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev 16	02/27/2006	CCP Acceptable Knowledge Documentation
CCP-TP-005	Rev 15	03/31/2005	CCP Acceptable Knowledge Documentation

CCP-TP-030	Rev 33	11/19/2013	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev 32	06/20/2013	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev 31	11/19/2012	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 30	05/21/2012	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev 29	04/26/2011	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev 28	05/12/2010	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
CCP-TP-030	Rev. 27	12/14/2009	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 26	05/27/2009	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev 25	01/22/2009	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 24	08/20/2008	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 23	03/12/2008	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 22	07/24/2007	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev 21	05/21/2007	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 20	02/07/2007	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev. 19	11/16/2006	CCP CH TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev 16	05/01/2006	CCP TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev 17	12/29/2005	CCP TRU Waste Certification and WWIS Data Entry
CCP-TP-030	Rev 16	04/22/2005	CCP TRU Waste Certification and WWIS Data Entry

WAP Certification:

CCP-PO-001	Rev. 21	05/31/2013	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 20	06/16/2011	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev 19	12/29/2010	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev 18	06/30/2010	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev 17	06/23/2009	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev 16	10/31/2007	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev 15	06/10/2007	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev 14	03/26/2007	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev 13	11/16/2006	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev 12	03/22/2006	CCP Transuranic Waste Characterization Quality Assurance Project Plan
CCP-PO-001	Rev. 11	03/10/2005	CCP Transuranic Waste Characterization Quality Assurance Project Plan

CCP-PO-002	Rev. 27	05/31/2013	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 26	07/14/2011	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 25	12/29/2010	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 24	06/30/2010	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 23	04/07/2010	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 22	01/12/2010	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 21	01/26/2009	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 20	11/02/2007	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 19	05/22/2007	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 18	11/16/2006	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 17	11/16/2006	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 16	11/16/2006	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 15	03/22/2006	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev 14	12/29/2005	CCP Transuranic Waste Certification Plan
CCP-PO-002	Rev. 13	05/09/2005	CCP Transuranic Waste Certification Plan

CCP-PO-003	Rev. 13	07/31/2013	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev 12	12/29/2010	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev 11	06/04/2009	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev 10	11/16/2006	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 9	12/29/2005	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev 8	01/25/2005	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev 7	11/22/2004	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev 6	06/08/2004	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev 5	09/19/2003	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-003	Rev. 4	02/11/2003	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)

CCP-PO-003	Rev. 3	05/31/2002	Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPC)
CCP-PO-024	Rev. 14	06/28/2013	CCP/INL Interface Document
CCP-PO-024	Rev. 13	11/02/2012	CCP/INL Interface Document
CCP-PO-024	Rev. 12	10/01/2012	CCP/INL Interface Document
CCP-PO-024	Rev 11	07/16/2011	CCP/INL Interface Document
CCP-PO-024	Rev. 10	12/29/2010	CCP/INL Interface Document
CCP-PO-024	Rev 9	03/16/2009	CCP/INL Interface Document
CCP-PO-024	Rev 8	07/07/2008	CCP/INL Interface Document
CCP-PO-024	Rev. 7	01/04/2008	CCP/INL Interface Document
CCP-PO-024	Rev 6	05/15/2007	CCP/INL Interface Document
CCP-PO-024	Rev 5	11/16/2006	CCP/INL Interface Document
CCP-PO-024	Rev. 4	03/14/2006	CCP/INL Interface Document
CCP-PO-024	Rev. 3	04/29/2005	CCP/INL Interface Document
CCP-PO-024	Rev. 2	04/12/2005	CCP/INL Interface Document
CCP-PO-024	Rev. 1	02/23/2005	CCP/INL Interface Document
CCP-PO-024	Rev 0	10/25/2004	CCP/INL Interface Document

CCP Correlation of Container Identification Numbers to Batch Data Report Numbers

Waste Stream: # ID-AECHHM

Lot # 3

Container ID Number	Historical Container ID	NDA BDR	RTR BDR	VE BDR	Overpack Yes	Transportation Headspace Gas	
						FGA	GGT
RW49576	N/A	INNDAS130055	RTR13-00129	N/A	No	AN13FG7003	N/A
RW88253	N/A	INNDAS130054	RTR13-00129	N/A	No	AN13FG7002	N/A

Signature of Site Project Manager

Richard Kantrowitz
Printed Name

01/21/2014
Date

CCP RTR/VE Summary of Prohibited Items and AK Confirmation

Waste Stream Number: ID-AECHHM Lot #: 3

Container Number	RTR Prohibited Items [a,b]	Visual Examination Prohibited Items [a,b]	Does the Physical Form of the Waste Match the Waste Stream Description as Determined
See correlation of container ID numbers for list of remaining drum numbers in this Lot.	None of the containers in this lot had prohibited items identified during RTR.	VE was not used to certify any containers in this Lot.	The physical form of the waste match the waste stream description as determined by AK.
a. See Batch Data Reports b. If AK has assigned U134 to this waste stream, then any liquids in these containers are prohibited items (not acceptable by the TSDF).			
Justification for the selection of RTR and/or VE: RTR was selected as the characterization method for this lot because the waste was previously packaged and RTR meets all the Data Quality Objectives for NDE for the waste.			

Site Project Manager Signature | Richard Kantrowitz Printed Name | 01/21/2014 Date

CCP Reconciliation with Data Quality Objectives

WSPF# ID-AECHHM Rev. 1 Lot # 3

Sampling Completeness

RTR/VE:

Number of Valid Samples: 2 Number of Total Samples Analyzed: 2

Percent Complete: 100 (QAO is 100%)

NDA:

Number of Valid Samples: 2 Number of Total Samples Analyzed: 2

Percent Complete: 100 (QAO is 100%)

	Y/N/NA	Reconciliation Parameter
1	Y	Waste Matrix Code.
2	Y	Waste Material Parameter Weights.
3	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.
4	N	AK Sufficiency. Is there an approved AK sufficiency Determination for this waste stream?
5	Y	The data demonstrates whether the waste stream exhibits a toxicity characteristic under Title 40 Code of Federal Regulations (CFR), Part 261, Identification and Listing of Hazardous Waste, Subpart C, Characteristics of Hazardous Waste.
6	Y	Does the waste stream contain listed waste found in 20.4.1.200 NMAC incorporating 40 CFR Part 261, Subpart D, Lists of Hazardous Wastes.
7	Y	Waste stream can be classified as hazardous or nonhazardous.
8	Y	The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WAP Sections C3-1 through C3-2 prior to submittal of a waste stream profile form for a waste steam or waste stream lot.

	Completeness	Comparability	Representativeness
Radiography	Y	Y	Y
VE	NA	NA	NA

Comments: This CIS represents the NDE and NDA data from the 3rd shipping lot from waste stream ID-AECHHM. A total of 32 containers have been evaluated in shipping lots 1 through 3.

Signature of Site Project Manager	Richard Kantrowitz Printed Name	01/21/2014 Date

SUMMATION OF ASPECTS OF AK SUMMARY REPORT: WASTE STREAM ID-AECHHM

Overview:

Argonne, previously known as Argonne National Laboratory-East, 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. Argonne grew from the initial experiments performed at the University of Chicago in 1941 to produce plutonium for nuclear weapons. Officially founded in 1946 as the first national laboratory, Argonne has been instrumental in the development of nuclear reactors and associated systems, materials, fuel elements, and components for use in both civilian and defense programs. This work included key participation in the development of essentially all the domestic 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.

The waste described in this report was generated during the repackaging of the historic waste materials generated by the Argonne facilities supporting the operations described above. Waste stream ID-AECHHM consists of mixed contact-handled (CH) homogeneous solids generated during the neutralization and solidification of aqueous and organic liquids originating from Argonne laboratory and maintenance operations packaged in Argonne Building 306 from May 2010 through September 2012. This CH transuranic (TRU) waste has been shipped to the Advanced Mixed Waste Treatment Project (AMWTP) located at the Idaho National Laboratory (INL). The waste will be stored and characterized at the Radioactive Waste Management Complex (RWMC) Transuranic Storage Area (TSA) at INL.

TRU waste generated at Argonne meets the definition of defense waste. The waste originated from, or was commingled with, materials from defense activities including; defense nuclear waste and materials by-products management; naval reactors development; weapons activities, including defense inertial confinement fusion; verification and control technology; defense nuclear materials production; defense nuclear materials security and safeguards and security investigations; and defense research and development.

This Summation of the AK Summary Report includes information to support Waste Stream Profile Form (WSPF) number ID-AECHHM. The primary source of information for this Summation is CCP-AK-INL-025, *Central Characterization Program Acceptable Knowledge Summary Report For Idaho National Laboratory Argonne Contact-Handled Transuranic Waste From Facility Maintenance and Laboratory Operations, Waste Streams: ID-AECHDM, ID-AECHHM,* Revision 2, dated July 9, 2013. This WSPF was revised to include containers generated during a 2012 campaign and include specific estimates for waste material parameters not originally included in Revision 0.

Waste Stream Identification Summary:

Waste Stream Name:	Argonne Solidified Inorganic and Organic Liquids
Waste Stream Number:	ID-AECHHM
Dates of Waste Generation:	May 2010 through September 2012
Waste Stream Volume, Current:	32 55-gallon drums
Waste Stream Volume, Projected:	None
Summary Category Group:	S3000 – Homogeneous Solids
Waste Matrix Code Group:	Solidified Inorganics, Solidified Organics
Waste Matrix Code:	S3110
TRUPACT-II Content Code (TRUCON):	AE 111, AE 211, SQ 111, SQ 211, ID 132, ID 232, SQ 113, SQ 213
Annual Transuranic Waste Inventory Report Identification Number:	AE-T003

Waste Stream Description and Physical Form:

Waste stream ID-AECHHM is mixed immobilized organic and inorganic liquids consisting of repackaged waste from historic laboratory and maintenance operations at Argonne packaged by the Argonne Waste Management Organizations Department (WMO) in Building 306.

Waste stream ID-AECHHM is waste materials that have common physical form, that contain similar hazardous constituents, and are generated from a single process or activity. The activity that generated the waste is a repackaging campaign of waste from historic laboratory operations and the associated maintenance operations.

Waste stream ID-AECHHM consists of mixed homogeneous solids generated during the neutralization and solidification of aqueous and organic liquids originating from Argonne laboratory and maintenance operations. The primary materials used to absorb/solidify these liquids in the WMO operation include Aquaset II-G for aqueous liquids and Petroset II-G for the organic liquids. Clay and vermiculite based absorbents may also be present from the neutralization and evaporation of acids, etchants, and solutions in the laboratories or previous WMO activities. Solidification agents such as Portland cement, Acid Bond, Nochar, or Petrobond may have been used to immobilize

some liquids. In addition, as much as 20 pounds of precautionary absorbent (e.g., Aquaset) have been added to the drums. This waste stream also contains metal cans used during the solidification of batches of liquids (References C3003, DR3002, P3001, P3002, P3003, U3003, U3004, U4003, and U4004).

Additionally, drums in this waste stream will contain lesser amounts of debris materials not included in debris waste stream ID-AECHDM containers, but will not exceed 50 percent by volume in any container. These materials include the following waste items:

- **Metal** materials include the following: aluminum, stainless steel, and iron items; cans, lids, trays, wire, targets, disks, gauges, pipe, fittings, valves, bolts, clips, screws, tubing, tools (e.g., forceps, vise, tweezers, scissors, pliers, razor knives, and saw blades), crucibles, screens, planchettes, foil, columns, racks, unistruts, and pressure cookers.

- **Other metal** materials include the following: copper, lead, brass items; pipe, tubing, fittings, sheeting, shot, and boxes.

- **Other inorganic materials** include the following: glass and ceramic items; bottles, jars, labware (e.g., pipettes, vials, flasks, beakers, and test tubes), crucibles (graphite, magnesium and beryllium oxide), chloride salt and oxide powder mixtures (plutonium, uranium, neptunium, lithium, cadmium, and potassium) leaded glass panes, and insulation (fiber glass and asbestos).

- **Cellulosic** materials include the following: paper, cardboard, cloth, and wood items; rags, towels, filters, cartons, boxes, personnel protective equipment (PPE) (e.g., suits and booties), lab coats, gloves (leather), and handles (wood).

- **Rubber** items include: gloves, tubing, o-rings, stoppers, cords, and gaskets.

- **Plastic** items include: bottles, lids, labware (vials, pipettes, and syringes), tubes, PPE (e.g., gloves, filter cartridges, tape), bags, sheeting, epoxy sample/source mounts, and rope (nylon).

Point of Generation:

Location

Waste stream ID-AECHHM was generated at Argonne (previously known as Argonne National Laboratory-East) in Argonne, Illinois

Area and/or Building of Generation

The primary Argonne facilities that generated this waste stream are: Buildings 200, 205, 212, 306 315/316, and 350 (New Brunswick Laboratory). Minor quantities of waste

were also generated at Buildings 40, 202, 203, 206, 211, 222, 223, 330, 331, 333, 362, 369, 378, 391, 398, and 815. Waste from these buildings has been commingled with waste from the primary facilities in existing containers.

Generating Processes:

Description of Waste Generating Processes

Argonne is a multi-disciplinary research laboratory that performs work in support of numerous areas of basic and applied sciences; including engineering, energy technology, chemistry, physics, materials, biomedicine, and environmental studies. Waste stream ID-AECHHM consists of homogeneous immobilized liquids repackaged by the WMO in Building 306 generated during Argonne maintenance and waste management operations. The waste originated from numerous facilities on site over decades of research and development support in the laboratories and hot cells in these facilities. However, extensive research relating to the general operations conducted in these buildings was performed to allow for adequate physical, radiological, and chemical characterization of the waste stream during the repackaging of these waste materials to provide a summary of processes and responsibilities associated with the operations conducted at Argonne.

There are six primary facilities where TRU waste was generated at Argonne: Buildings 200, 205, 212, 306, 315/316, and 350. Building 200 housed two different generator entities, Chemistry Division (CHM) and the Analytical Chemistry Laboratory (ACL) operated by the Argonne Chemical Technology Division (CMT). Building 212 housed two generator entities, both operated by the Energy Technology Division (References AE-C-027, AE-P-009, AE-P-010, AE-P-028, AE-P-044, AE-P-054, AE-P-090, and AE-P-106).

<u>Building 200 - Chemistry Division</u>

CHM is headquartered in Building 200 and its primary mission is to support development of future energy technologies in fusion, fission, and solar energy (References AE-P-107 and AE-P-108). In addition to this, many of the CHM programs and projects have supported waste management efforts at Department of Energy (DOE) facilities throughout the complex (References AE-P-107 through AE-P-112, and AE-P-125). They have also supported investigation into radioactive waste forms, specifically borosilicate glass.

CHM performs all of its radioactive work in the M-Wing in Building 200. M-Wing is set up as three different areas: the cold labs used for materials preparation for research, the hot labs used for work with radioactive materials, and the hot cells, used for work with high-gamma radiation materials. The hot labs in M-Wing consist of numerous laboratories, each set up with unique equipment (e.g., a spectrophotometer) and related ancillary equipment (e.g., hoods, drains, chemical handling equipment). Because of the

unique nature of the equipment in each laboratory, a particular research project may use any or all laboratories depending on the type of work involved (References C353, C354, P616, and U339).

CHM developed the TRU extraction (TRUEX) and related strontium extraction (SREX) processes to recover TRU radionuclides and strontium, respectively, from radioactive wastes (References AE-P-107 through AE-P-112). Both the TRUEX and SREX processes had direct application to the tank waste at Hanford. CHM also developed a process using thermally unstable complexants to enhance the TRUEX process and provide a wider applicability to radioactive waste and spent nuclear fuel processing. Other key DOE programs that CHM has supported include monitoring waste isolation, isotope separation, waste management source term monitoring, development of a new ion exchange resin to address alpha-emitting mixed waste, by-product recovery from nuclear waste, and disposal options for actinide-contaminated waste. CHM is currently being funded directly by the DOE Defense Programs office for research and development in radiation damage to borosilicate glass, waste minimization during decontamination and decommissioning (D&D) projects, long-term performance of stored radioactive waste glass forms, immobilization of actinides in high-level waste, and radionuclide behavior in alkaline tank wastes.

Buildings 200 and 205 - Chemical Technology Division

CMT is headquartered in Building 205 (Reference AE-P-054). The facilities involved with TRU waste generation are the G- and K-Wing laboratories, which were designed for experimental work with radioactive materials. The ACL is operated by CMT in three locations: Building 200 (F-, K-, and N-Wings), Building 203 (A-Wing), and Building 205 (G- and K-Wings) (Reference AE-C-004). No TRU waste was generated from CMT's operations in Building 203.

The Building 205 laboratories in the G-Wing contain various types of analytical and pilot-scale equipment, which changes based on the types of work being performed. The K-Wing is situated on the ground floor of the building and consists of three hot cells (referred to as the Senior Cave), a manipulator room for the hot cells (operating area), a support area including isolation rooms behind the hot cells, and a combination workshop manipulator preparation area (service area) (References C2002, C2003, C2004, C2005, C2006, C2007, P2000, P2016, and P2018).

The ACL laboratories in Building 200 are set up for chemical preparation of analytical samples from a variety of Argonne programs, and for instrumental analysis of the prepared samples to determine inorganic constituents or isotopic composition. The laboratories contain various types of analytical chemistry instruments, including mass spectrometers, inductively-coupled plasma spectrometers, atomic absorption spectrophotometers, and elemental analyzers.

Originally, the CMT division's only mission was to develop processes for recovery of spent nuclear fuels. Over the years, the division's mission expanded to include research and development in a wide variety of chemistry and related applications,

including fuel cells, radioactive waste management, environmental chemistry, geochemistry, and operation of the ACL. Today, CMT's primary mission is the safe application of chemical and engineering disciplines and techniques to process design and development in areas that are energy related, or are related to other parts of the DOE charter such as nuclear energy, waste management, environmental restoration and remediation, production and transformation of nuclear and other materials, and energy utilization (Reference AE-P-124).

CMT has been involved in numerous reactor and waste management programs during the 1980s and 1990s (References AE-I-028 through AE-I-031, AE-I-038, AE-I-039, AE-I-040, AE-I-044, AE-I-046, AE-I-048, AE-I-049, AE-I-050, AE-I-052, AE-I-054, AE-I-055, AE-I-070, AE-I-071, AE-I-073, AE-I-165, AE-P-054 through AE-P-067, C4001, C4002, and C4003). Reactor program involvement included work on the Integral Fast Reactor (IFR) fuel cycle, fuel treatment studies using Hanford N-reactor fuel, and Proof-of-Breeding studies for naval nuclear reactors. Waste management program support included studies for the Defense Waste Processing Facility at the Savannah River Site (SRS) in support of the Yucca Mountain Project; radiolytic gas generation studies for ceramicrete waste forms; fabricating, characterizing, and testing ceramic waste forms for weapons plutonium disposal; testing of vitrified waste forms for application to the Hanford tank wastes; developing final flowsheets for the TRUEX process using New Brunswick Laboratory (NBL) waste and for application to Hanford wastes; and plutonium recovery from defense waste (scrap and residues) in cooperation with the Lawrence Livermore National Laboratory (LLNL) and SRS. CMT has also provided direct support to the Waste Isolation Pilot Plant (WIPP) program for actinide solubility in brine studies.

Building 212 - Energy Technology Division

The overriding design criterion for Building 212 was to allow Argonne to carry on research programs pertinent to the advancement of reactor technology, with a particular emphasis on the use of plutonium as fuel (Reference AE-P-037).

Building 212 is laid out in eight wings (Reference AE-P-037). D-Wing was identified as the "Plutonium Physical Metallurgy Laboratory" and was equipped to perform various metallurgical operations, including: metallography, welding, materials processing, x-ray diffraction, melting/casting, machining, heat treatment, and passivation (References AE-P-037 and AE-P-038). Various types of equipment were placed inside the gloveboxes to support D-Wing operations (e.g., hydraulic press, tools, lathes, furnaces, hot plates). (References AE-C-011 and AE-P-005).

Specific research and development programs that were conducted by the Metallurgy Division included fast reactors, breeder reactors, ceramic fuels (including cermet fuels), thorium-uranium-plutonium alloy fuels, fuel cells, fusion reactors, Zero Power Reactors, Liquid Metal Fast Breeder Reactors (LMFBR), IFR, Gas-Cooled Fast Reactors, and the Strategic Defense Initiative (SDI) program (References AE-P-029 through AE-P-036). Specific programs that were conducted in D-Wing include: breeder reactors (e.g.,

Experimental Breeder Reactor [EBR], LMFBR, and IFR), cermet fuels, SDI, and plutonium passivation for the entire laboratory (References AE-C-003 and AE-I-001 through AE-I-017).

The Alpha Gamma Hot Cell Facility (AGHCF) in the F-Wing of the building was built in the late 1950s and started operations in the early 1960s as the "Fuels Technology Center" under the direction of the Metallurgy Division. The AGHCF was capable of in-depth post-irradiation examinations of fuel elements, fuel, cladding, and structural materials, and small test components. A shielded microscope was connected to the cell by a nitrogen pneumatic transfer system. The shielded gloveboxes were used for preparing specimens of fuel for electron microscopy, or other tests, and for density measurements on claddings (References C138, C335, P002, P004, P378, and P380).

During early operations, the AGHCF was used primarily for the Post-Irradiation Examination (PIE) metallographic studies of fuel and structural materials. As the emphasis in reactor development programs changed, additional equipment and techniques were developed to supply the information required in these new areas of interest. Specifically, this included information relating to the behavior of advanced ceramic fuel materials, such as the mixed carbides and mixed oxides of uranium and plutonium. Fuel materials received and examined by the AGCHF originated from the Argonne National Laboratory-West (ANL-W) reactors including the EBR-II, Transient Reactor Test Facility (TREAT), Fast Flux Test Facility (FFTF), Materials Test Reactor (MTR), and Advanced Test Reactor (ATR) test and research reactor facilities. Other test materials were also received from SRS, Hanford, Oak Ridge National Laboratory (ORNL), and Los Alamos National Laboratory (LANL) operations (References C016, C046, C074, C082, C108, C138, C155, C157, C812, C2005, C2007, C2011, C2022, C2023, C2024, P002, P013, P061, P329, P520, P532, P606, P607, P815, P816, P817, P822, P826, P827, P829, P2032, P2033, P2034, U045, U076, U1003, and U2002).

Buildings 315/316 – Reactor Research and Development Group

Although a relatively minor generator compared to the other facilities described, Buildings 315/316 did generate TRU waste. Buildings 315/316 housed a reactor research and development group from the early 1950s through the mid 1980s (Reference AE-C-027). The buildings acted as a self-contained facility for design, mock-up, and construction of bench scale models of various reactor systems. Reactor systems designed and evaluated at these buildings included the Navy propulsion Nautilus reactor, the Zero Power series of reactors and the series of fast reactors developed by Argonne. Fast reactors included the IFR, the Fast Breeder Reactor, and the LMFBR.

Building 306 - Waste Management Organization

Building 306 is used by the Argonne WMO for waste treatment and repackaging operations, as well as waste storage. The waste repackaged by WMO originated from numerous TRU waste generating operations conducted in several facilities at Argonne

and was transferred to the WMO for processing. Liquid wastes are neutralized (as necessary), sampled, and solidified before being placed into receiving drums. All prohibited items are identified at this time and either segregated or remediated prior to packaging. As part of these operations, WMO has and continues to routinely commingle waste from various Argonne primary waste generators, including Buildings 200, 205, 212, 315/316, and 350, as well as small quantities of waste from minor waste generating buildings. Commingling of liquid waste during the neutralization and solidification/absorption operations is especially common since this type of waste is normally received in small quantities (e.g., milliliter quantities up to several gallons) (References AE-C-025, AE-I-188, AE-I-195, P3002, U3001, U3003, U3004, U3005, U4003, U4004, and U4005).

Building 350 - New Brunswick Laboratory

NBL is dedicated to analytical chemistry and measurement science of materials (primarily plutonium and uranium) critical to the nation's defense and energy programs (Reference AE-P-045). NBL's activities involve measuring the elemental and isotopic composition of nuclear materials either to characterize and certify reference materials or to define the fissile materials content of samples taken by government inspectors for safeguards inventory verification purposes. NBL is also involved with developing or improving methods for the elemental and isotopic measurement of nuclear materials, and evaluating the performance of other nuclear laboratories through comparison programs or onsite inspections. Analyses of nuclear materials, ranging from high-purity metals or alloys to low-purity scrap, are conducted using a variety of methods. Analytical methods include reduction-oxidation titrimetry, controlled-potential and constant-current coulometry, mass spectrometry, isotope-dilution mass spectrometry, and x-ray and gamma ray spectrometry.

Other Generator Buildings

A minor portion of the total inventory of TRU waste at Argonne was generated or managed at several other buildings, including: Buildings 40, 202, 203, 206, 211, 222, 223, 330, 331, 333, 362, 369, 378, 391, 398, and 815. TRU waste from these buildings has been commingled with waste from the primary facilities in existing drums. Based on a review of the AK record relating to TRU waste generating projects at Argonne, these facilities would have generated waste in support of the programs described above resulting in a minimal amount of laboratory waste similar in physical form and radiological and chemical contamination (References AE-C-006, AE-C-024, AE-C-025, AE-I-188, AE-P-006, AE-P-007, U3001, U3003, U3004, and U3005).

Maintenance

Facility maintenance operations may include routine or one-time operations to repair or replace equipment or to clean out facilities. They may also encompass D&D activities,

facility modification activities, or daily maintenance activities. Debris waste was generated during maintenance operations at various facilities (References U3001, U3003, U3004, and U3005).

Argonne Waste Repackaging Process

The waste repackaging operations generating the TRU waste stream were conducted by the Argonne WMO in the A160 hood (debris sorting and packaging) and A126 hood (liquid immobilization and packaging) in Building 306. These operations were conducted in accordance with the WMO TRU waste packaging procedures and work plans and all packaging operations were video and audio recorded to verify and document the physical form of the waste, waste stream description, and absence of prohibited items (References C3003, P3001, P3002, P3003, and P3004).

The waste being repackaged by WMO originated from numerous TRU waste generating operations conducted in several facilities at Argonne and was transferred to the WMO for processing in a variety of containers ranging from less than a liter to 55-gallon drums, with a majority of the containers being less than five gallons. Debris waste was removed from these original "feed" containers and inspected before being placed into the payload container. Liquid waste was neutralized (as necessary), sampled, and solidified before being placed in the receiving drums. All prohibited items were identified at this time and either segregated or remediated prior to packaging. Additionally, absorbents or absorbent pads were typically added between the drum and liners and in the liner to absorb any condensation that may accumulate after packaging. (References C3003, P3001, P3002, P3003, P3004, and U3004).

CH TRU liquid wastes were bulked, neutralized (if necessary), and solidified. The organic liquids consisted primarily of extraction solvents (e.g., tributyl phosphate, dodecane, crown ether, ethyl hexanol, kerosene). Organic liquids were typically solidified using Petroset II-G. Aqueous liquids were typically solidified with Aquaset II-G. Multi-phase liquids were separated prior to solidification to ensure proper immobilization. Bench-scale bulking of these wastes was performed for volumes too small for operation of the bulking tub or the reactor tank. For larger volumes, up to approximately 13 gallons, bulking and neutralization was performed using a bulking tub. For liquid volumes greater than 13 gallons, but less than 120 gallons, bulking and neutralization were performed in a reactor tank (References C3003 and P3004).

For the neutralization of corrosive liquids containing acid solutions (e.g., nitric, hydrochloric, hydrofluoric, perchloric), a WMO Waste Specialist completed additional Calculation Data Sheets, as needed. These data sheets include the chemical requirements for neutralization and solidification. Before treatment, each waste container was transferred to Room A-134 and examined for leaks or other damage and to conduct radiation and contamination surveys. The waste containers were then transferred to the treatment hood in Room A-126. Bulking of wastes was conducted and magnesium hydroxide slurry (60 percent) was added to the bulked waste to neutralize the acidity and increase the pH to the range of 7 to 10. Before neutralization,

a sample was taken for radiochemical analysis. The waste liquids were solidified in-situ in 1-gallon cans or immobilized in trays and placed directly in 55-gal drums. The absorbent to waste ratio is 1.0 gram Aquaset II-G per 1 milliliter waste or 8.3 pounds of absorbent to one gallon of waste (References P3001, P3002, P3003, and P3004). Additionally, waste was packaged directly during the cleanout and decontamination of the G-Wing gloveboxes in Building 205 during the 2012 waste repackaging campaign. The waste materials in gloveboxes G-109 and G-133 was removed and the gloveboxes decontaminated. The gloveboxes supported historic actinide research projects described above. The waste generated included the equipment and waste remaining in the area. After the gloveboxes were cleaned out the inside and outside surfaces were decontaminated using solutions containing nitric acid, Rad- Release, ReAct, and Simple Green reagents. The decontamination rags used and glovebox surfaces were neutralized, when necessary, with a sodium bicarbonate solution to a pH between 7 and 10. An Elmer's Glue-All and water mixture was misted onto glovebox surfaces and HEPA filters as a fixative agent. The decontamination solutions were sent to Building 306, immobilized, and included in waste stream ID-AECHHM (References C4001, C4002, C4003, P4001, P4009, U4001, U4002, U4003, U4004, U4005, U4006, and U4007).

RCRA Determinations – Hazardous Waste Determinations

Historical Waste Management

Based on a review of the Argonne container documentation and historic waste management practices, feed containers originally containing waste materials packaged into the waste stream ID-AECHHM drums were historically managed and continue to be managed as hazardous waste (References U3003 and U3004). Notable changes to the HWNs originally assigned to Argonne waste stream AECHHM shipped directly to WIPP during the 2002 to 2003 timeframe, include (Reference DR3001):

- Removal of HWN F003 for solvents listed solely for ignitability in the liquid state.
- Removal of HWN for F001 listed solvents, because large-scale degreasing operations were not conducted in Argonne laboratory operations.
- Removal of HWNs D018 (benzene), D021 (chlorobenzene), D035 (methyl ethyl ketone), and D036 (nitrobenzene), and assignment of more specific F-listed HWN for these solvents.
- Addition of HWN D029 for 1,1-dichloroethylene identified as a potential contaminant during subsequent RH waste characterization.
- Addition of HWN F002 for tetrachloroethylene and trichloroethylene identified as a potential contaminants of CH debris and during subsequent RH waste characterization.
- Addition of HWN F005 for isobutanol identified as a potential contaminant during subsequent RH waste characterization.

Waste Stream Material and Chemical Inputs

Chemical/Material	Use/Description	AK Source	EPA HWNs
1,1,1-trichloroethane	Manipulator arm maintenance and cleaning. Cell cleaning solvent. Ingredient of Hyprez lubricant (10-30%)	AE-C-022, AE-I-008, AE-I-011, AE-I-149, AE-I-150, C012, C066, C137, C147, P327, P389, P416, U065, U072, U321	F002
1,1-dichloroethylene	Metallurgical reagent.	C147	D029
1,1,2-trichloro-1,2, 2-trifluoroethane (Freon TA)	Used in the Analytical Chemical Laboratory in cold traps and sample preparation.	AE-D-011, AE-I-032, AE-I-124, AE-I-192	F002
1,2-dichloroethane	Metallurgical reagent and organic solvent.	AE-D-012, AE-I-131, C147	D028
1,4-dichlorobenzene	Spiking solution.	AE-D-012, AE-I-148	D027
2,4-dinitrotoluene	Spiking solution.	AE-D-012, AE-I-148	D030
Arsenazo III	Reagent.	AE-I-184, AE-I-195	D004
Arsenic	Contaminant of HEPA filters and clay absorbent. Present in acidic solutions.	AE-I-184, AE-I-195, C014, P412, U083, U3003	D004
Barium	Contaminant of HEPA filters, clay absorbent, and fluorescent bulbs. Present in dissolved fuel. Component of UREX+1a feed. Barium oxide in ceramics	AE-I-126, AE-I-149, AE-I-150, AE-I-192, AE-I-195, AE-I-199, C035, C116, C160, C4001, C4003, P412, P416, P2017, P2021, P2022, P2023, P2028, U083, U084, U3003, U4004	D005
Barium chromate	Waste product	AE-I-149, AE-I-150	D005 D007
Barium chloride	Molten salt solvent	AE-I-028, AE-I-047, AE-I-126	D005
Barium nitrate	Barium carrier	AE-I-149, AE-I-150	D005
Benzene	Laboratory reagent. Refluxing solvent for ammonium carbonate and Cyanex 301. Standard solution. Solvent.	AE-D-011, AE-I-131, AE-I-187, AE-I-192, AE-P-044, C147, P2022, U066	F005
Cadmium	Contaminant of HEPA filters and pelletized clay. Component of neutron shielding, batteries, photography solutions, and other metal alloys. Component of UREX+1a feed. Dosimeter component. Present as cadmium salts, plutonium and uranium chloride salt mixtures.	AE-I-028, AE-I-038, AE-I-047, AE-I-050, AE-I-195, AE-P-070, AE-P-095, AE-P-099, C020, C066, C094, C116, C160, C4001, P412, P416, P2017, P2021, P2022, P2028, U015, U017, U072, U083, U3003, U4003	D006
Cadmium chloride	Pu oxidizing agent.	AE-I-028, AE-I-038, AE-I-047, AE-I-050, U4005	D006
Carbon tetrachloride	Immersion density measurements. Metallographic specimen and cell cleaning solvent. Extraction solvent.	AE-C-019, AE-D-005, AE-D-011, AE-I-030, AE-I-031, AE-I-034, AE-I-186, AE-I-193, C066, C081, C137, C147, P416	D019
Chlorobenzene	Standard solution.	AE-D-012, AE-I-131	F002
Chromic acid	Metallography etchant acid.	C066, C137, C147, U006	D007
Chromium	Component of chromic acid etchant, fuel, stainless steel cladding, chromium plated measuring tapes, chromic oxide polishing abrasive, pelletized clay and HEPA filters. Present in leachate solution.	AE-I-010, AE-I-011, AE-I-034, AE-I-035, AE-I-051, AE-I-052, AE-I-084, AE-I-106, AE-I-109, AE-I-149, AE-I-150, AE-I-195, AE-I-199, AE-P-044, AE-P-095, AE-P-099, C066, C116, C137, C160, P412, P490, P2003, P2021, P2023, U006, U068, U069, U070, U072, U074, U083, U084, U3003, U4004	D007
Hyprex	Petroleum distillate based lubricant containing 1, 4-dioxane (0-1%) and 1,1,1-trichloroethane (10-30%) used for specimen cleaning.	C012, C029, C066, P062, P069, P389, U072, U321	F002
Isobutanol	Metallurgical reagent – cleaning solvent.	C147, P416	F005
Lead	Component of manipulator weights, metal scrap, leaded glass, shielding, leaded gloves and aprons, blocks, shot, lead wool, lead-bismuth epoxy, paint, lead solder (electronics), flashlight batteries, lead-acid batteries, sodium vapor lamps, and HEPA filter contaminant. Reference Material. Present in leachate solution.	AE-C-032, AE-C-035, AE-C-036, AE-C-037, AE-D-004, AE-I-030, AE-I-195, AE-I-199, AE-P-095, AE-P-099, C013, C029, C066, C088, C091, C137, C143, C147, C148, C333, C341, P023, P038, P039, P380, P412, P416, P484, P485, P487, P489, P490, P521, P536, P537, P557, P2003, P2017, U004, U006, U015, U017, U018, U019, U021, U041, U072, U083, U332, U3003, U4003, U4005	D008

Chemical/Material	Use/Description	AK Source	EPA HWNs
Light bulbs	Broken fluorescent and mercury lamps.	AE-I-195, P392, P416, U015, U017, U018, U019, U021	D009
Mercury	Component of mercury vapor lights, fluorescent lights, batteries, barometers, thermometers, prinometers (density testing), electrodes, and switches. Used in fuel immersion density testing.	AE-D-004, AE-I-006, AE-I-029, AE-I-034, AE-I-078, AE-I-084, AE-I-107, AE-I-195, AE-I-199, AE-P-044, AE-P-095, AE-P-096, AE-P-099, C013, C035, C066, C137, C143, C147, C356, P070, P412, P416, P2011, U015, U017, U018, U019, U021, U022, U041, U083, U085, U3003	D009
Methylene chloride	Solvent. Rinse. Extraction solvent.	AE-D-011, AE-I-130, AE-I-148, AE-I-192	F002
Methyl ethyl ketone (MEK)	Building 205 chemical inventory. Solvent.	AE-D-011, AE-I-128, AE-I-192, AE-P-044, P2018	F005
Nitrobenzene	Spiking solution. Reagent/solvent.	AE-D-011, AE-I-148, AE-I-186	F004
Pentachlorophenol	Spiking solution	AE-D-012, AE-I-148	D037
Potassium dichromate	Titrant. Test for orthophosphoric acid. Oxidizing agent. Used to oxidize antimony impurity to Sb(V).	AE-C-019, AE-I-034, AE-I-035, AE-I-084, AE-I-106, AE-I-109, AE-I-195	D007
Selenium	Irradiation experiment reagent. Contaminant of HEPA filter media. Component of UREX+1a feed.	AE-I-195, P412, P2028, U006, U083, U3003	D010
Silver	Component of silver nitrate etchant, mounting epoxy, containers, solder (electronics), foil, photographic film and chemicals, and HEPA filter contaminant and screw eyes. Component of UREX+1a feed.	AE-C-017, AE-C-022, AE-I-040, AE-I-195, C020, C029, C066, C137, C147, C4001, P061, P062, P068, P410, P412, P416, P507, P539, P2017, P2021, P2028, U006, U072, U083, U3003	D011
Silver iodide	Waste material	AE-I-195	D011
Silver nitrate	Metallography etchant reagent for Zircaloy metals. Chloride ion test agent. Chloride detection.	AE-C-022, AE-I-044, AE-I-054, C066, C137, P062, P539, P2026, U006, U321, U3001	D011
Sodium arsenite	Hydrogen charging solution reagent for auger fracture specimens.	P521	D004
Sodium chromate	Precipitation agent.	AE-I-149, AE-I-150	D007
Tetrachloroethylene (perchlorethylene)	Manipulator arm maintenance and cleaning. Cell cleaning solvent. Test solvent.	AE-C-022, AE-I-044, C066, C137, C147, C2009, P416, U066, U2007, U2008, U2009, U2010	F002
Toluene	Manipulator arm maintenance and cleaning. Metallographic specimen and cell cleaning solvent. Component of Krylon Spray. Solvent.	AE-C-022, AE-I-131, AE-I-181, AE-I-184, AE-I-193, AE-P-044, AE-P-054, C012, C066, C137, C147, P062, P410, P416, P2018, U066, U072, U321	F005
Trichloroethylene	Cleaning solvent.	AE-D-011, AE-I-031, AE-I-032	F002

Hazardous Waste Determination

Ignitability, Corrosivity, Reactivity

Chemicals used during historic Argonne laboratory operations may exhibit the characteristic of ignitability, corrosivity, and/or reactivity in their pure form. Based on the review of the Argonne waste management practices and container documentation, no ignitable, corrosive, or reactive materials were disposed of in the waste stream in a liquid or unused form or without being reacted, neutralized, and/or immobilized. Any unused chemicals would have been segregated during packaging and disposed of as low-level waste (References C041, P3001, P3002, P3003, P3004, P4002, P4003, U3003, U3004, U4003, and U4004).

Ignitability

The homogeneous materials in this waste stream do not meet the definition of ignitability as defined in 40 CFR 261.21. Ignitable organic liquids were used in Argonne laboratory operations and immobilized during repackaging operations in accordance with WMO procedures and work plans. The waste may be contaminated with oxidizers (e.g., nitrates, perchlorates) that were used in Argonne operations, but should be present only in residual quantities (i.e., low concentrations in aqueous solutions). Therefore, the waste does not meet the definition of an oxidizer and will not cause a fire through friction, absorption of moisture, or spontaneous chemical change. To ensure the final waste form does not exhibit the characteristic of ignitability, free liquids (regardless of quantity) and compressed gases were managed as prohibited items when identified during waste packaging. The materials in this waste stream are therefore not ignitable D001 wastes (References P3001, P3002, P3003, P3004, P4002, P4003, P4005, U3003, U3004, U4003, and U4004).

Corrosivity

The homogeneous materials in this waste stream do not meet the definition of corrosivity as defined in 40 CFR 261.22. As required by WMO procedures and work plans, all corrosive liquids (acidic and basic solutions) have been isolated, neutralized, and immobilized. To ensure that the final waste form does not exhibit the characteristic of corrosivity, liquids (regardless of quantity) have been managed as prohibited items when identified during WMO repackaging operations. The materials in this waste stream are therefore not corrosive D002 wastes (References P3001, P3002, P3003, P3004, P4002, P4003, U3003, U3004, U4003, and U4004).

Reactivity

The homogeneous materials in this waste stream do not meet the definition of reactivity as defined in 40 CFR 261.23. The materials are stable and will not undergo violent chemical change. The materials will not react violently with water, form potentially explosive mixtures with water, or generate toxic gases, vapors, or fumes when mixed with water. The material will not readily detonate or undergo explosive decomposition. All the solidified liquids were immobilized and all residual liquids were absorbed and verified in accordance with the WMO TRU waste packaging procedures. Other reactive materials, including cyanides, sulfides, and explosives, were not identified in the materials included in this waste stream. The materials in this waste stream are therefore not reactive D003 wastes (References P3001, P3002, P3003, P4005, U3003, U3004, U4003, and U4004).

Examples of the organic and inorganic liquids immobilized during repackaging at Argonne are provided in the Argonne Waste Repackaging Process description. The containers in this waste stream have been evaluated using radiography in accordance with the WIPP WAP prior to shipment to ensure the absence of prohibited liquids.

Toxicity Characteristic

Based on review of AK relative to chemicals used or present in Argonne laboratory and maintenance operations, waste stream ID-AECHHM may be contaminated with toxicity characteristic compounds as defined in 40 CFR 261.24. Where a constituent has been identified and there is no or limited quantitative data available to demonstrate that the concentration of a constituent is below regulatory threshold levels, the applicable EPA HWN is applied to the waste stream. Based on a review of the AK documentation, toxicity characteristic metal EPA HWNs D004 (arsenic), D005 (barium), D006 (cadmium), D007 (chromium), D008 (lead), D009 (mercury), D010 (selenium), and D011 (silver) are assigned to waste stream ID-AECHHM (Reference DR3001).

The AK sources identified the use of organic toxicity characteristic compounds including 1,1-dichloroethylene (D029), 1,2-dichloroethane (D028), 1,4-dichlorobenzene (D027), 2,4-dinitrotoluene (D030), benzene (D018), carbon tetrachloride (D019), chlorobenzene (D021), methyl ethyl ketone (D035), nitrobenzene (D036), pentachlorophenol (D037), and tetrachloroethylene (D039). Benzene, chlorobenzene, methyl ethyl ketone, nitrobenzene, and tetrachloroethylene are identified as F-listed solvents. Because the more specific F-listed EPA HWNs have been assigned for these compounds, assignment of the corresponding toxicity characteristic HWNs (D018, D021, D035, D036, and D039) is not necessary. Therefore the applicable HWNs D019, D027, D028, D029, D030, and D037 are assigned to waste stream ID-AECHHM (Reference DR3001).

Listed Waste

F-Listed Waste

Based on review of AK relative to chemicals used or present in Argonne laboratory and maintenance operations, waste stream ID-AECHHM may contain or be mixed with F-listed hazardous wastes from non-specific sources listed in Title 40 CFR 261.31. F002, F004, and F005 listed solvents were used in these operations. F003 constituents used in these operations, including acetone, methyl isobutyl ketone, n-butyl alcohol, xylene, ethyl acetate, ethyl benzene, ethyl ether, and methanol are listed solely because these solvents are ignitable in the liquid form. The waste stream does not exhibit the characteristic of ignitability because it is not liquid; therefore, F003 is not assigned. Although several F001-listed solvents were identified in the AK record (i.e., 1,1,1-trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, carbon tetrachloride, methylene chloride, tetrachloroethylene, and trichloroethylene), EPA has provided a regulatory clarification that the F001 listing is only appropriate when the listed solvents are used in a "large-scale" degreasing operation such as cold cleaning or vapor degreasing on an industrial scale. Argonne laboratory and maintenance operations did not conduct large-scale degreasing operations, and therefore, EPA HWN F001 is not assigned to this waste stream. Waste stream ID-AECHHM is assigned F-listed EPA HWNs F002, F004, and F005 for the listed chemicals identified in the table above (Reference DR3001).

U, K, P-Listed Chemicals

Based on a review of AK documentation, waste stream ID-AECHHM does not contain and is not mixed with a discarded commercial chemical product, an off-specification commercial chemical product, or a container residue or spill residue thereof, as defined in 40 CFR 261.33. The WMO TRU waste packaging procedure, requires unused chemicals identified during waste repackaging operations to be removed from the waste and disposed of as low-level waste. P- and U-listed reagents, including hydrofluoric acid (U134), were used in Argonne operations; however, no pure product or unused chemicals would have been disposed of in TRU waste containers. No listed chemicals were identified in the container-specific documentation and no records indicate that waste contains material originating from spill cleanup of listed chemicals (e.g., incident report). The only sources of beryllium identified in the AK record were samples being analyzed for beryllium and beryllium oxide crucibles used in an electrorefining furnace in Building 205. Based on the physical form of the samples introduced into the waste generating processes, the waste stream will not meet the definition of P015 waste. Waste stream ID-AECHHM is therefore not assigned a P- or U-listed HWN (References AE-I-050, DR3001, DR3003, P3001, U3003, and U3004).

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

Polychlorinated Biphenyls

Based on the review of AK, no sources for polychlorinated biphenyl (PCB) compounds (e.g., hydraulic oils, fluids) or other PCB containing equipment (e.g., transformers, ballasts, capacitors) were identified in waste stream ID-AECHHM. Therefore, this waste stream is not regulated as a Toxic Substances Control Act (TSCA) waste under 40 CFR 761 (References U3003 and U3004).

Prohibited Items

Based on the review of the procedure for handling and packaging TRU waste, as well as container packaging records, no prohibited items were included in the ID-AECHHM waste stream during packaging. Prohibited liquids resulting from dewatering or condensation during shipment from Argonne to the AMWTP identified during RTR will be absorbed prior to shipment to WIPP (References P3001, U3003, and U3004).

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

Method for Determining Waste Material Parameters Weights Per Unit of Waste

The WMP weight estimates for waste stream ID-AECHHM represent the relative amounts of solidified organic liquids (WMP organic matrix) and solidified aqueous liquids (WMP inorganic matrix) generated during WMO solidification operations, based on an evaluation of the liquids present in the initial inventory to be solidified. Based on this evaluation, it was determined that approximately ten percent of the liquids were organic and 90 percent of the liquids were aqueous. It should be noted that this evaluation does not include the metal inner cans used during the solidification of the liquids or the inclusion of debris containers originally assigned to debris waste stream ID-AECHDM. For this reason, waste stream could contain lesser amounts of any of the WMPs (References C3002 and DR3002).

Waste Stream ID-AECHHM Waste Material Parameter Estimates

WMP Description	Average Weight Percent	Weight Percent Range
Immobilized Liquids*		
Inorganic Matrix	89.1%	0.0% - 100%
Organic Matrix	10.9%	0.0% - 100%
Other WMPs		
Iron-based Metals/Alloys	<5%	These WMPs are less than 50 percent by weight total in any waste stream ID-AECHHM drum.
Aluminum-based Metals/Alloys	<5%	
Other Metals	<5%	
Other Inorganic Materials	<5%	
Cellulosics	<5%	
Plastic (waste materials)	<5%	
Rubber	<5%	
Soils/Gravel	<5%	

* Includes only immobilized liquid portion of the waste stream.

List of AK Sufficiency Determinations

No AK Sufficiency Determinations have been requested for this waste stream.

Transportation

This waste stream meets the requirements for TRUCON codes AE 111, AE 211, SQ 111, SQ 211, SQ 113, SQ 213, ID 132, and ID 232.

Beryllium

With the exception of one container (RW48190), beryllium is not expected to be present in more than trace quantities and will not exceed one percent, by weight, in payload

containers. Beryllium oxide in a bag of waste originating from the G-Wing in Building 205 packaged into drum RW48190 was estimated to exceed one percent by weight in the container (Reference DR3004).

Radionuclide Information

Certified assay data (CCP NDA characterization results) for 55 containers from the previously certified homogeneous waste stream AECHHM were used to establish relative radionuclide weight and activity for waste stream ID-AECHHM. To determine isotopic ratios, the gram value for each individual radionuclide was summed over the waste stream and then divided by the total radiological mass in the waste stream. This value was converted to a percentage and is presented as the "Total Radionuclide Weight%" on the following table, Radionuclide Distribution for Waste Stream ID-AECHHM. In the same way, a calculation was performed for "Total Radionuclide Curie%" using the sum of activities for each radionuclide over the original waste stream. The "Radionuclide Weight% Range for Individual Containers" was determined by summing the total radiological mass in each container and calculating the weight percent of each radionuclide in each container. To determine the range, the maximum and minimum were determined by reviewing the container-by-container assay results for the original waste stream. The same process was applied to determine the "Total Radionuclide Curie% Range for Individual Containers" (Reference U3002). Every radionuclide listed in the table is expected in waste stream ID-AECHHM, including U-233.

Radionuclide Distribution for Waste Stream ID-AECHHM

Radio-nuclide	Container with Reported Radio-nuclide	Total Radio-nuclide Weight %[1, 5]	Radionuclide Weight% Range for Individual Containers[3,5]	Total Radio-nuclide Ci %[2,5]	Radionuclide Ci% Range for Individual Containers[4,5]	Expected in Waste Stream (Yes/No)
WIPP Required Radionuclides						
Am-241	55	0.05%	Trace - 4.65%	19.00%	11.67% - 75.01%	Yes
Pu-238	50	Trace	0% - 0.02%	5.93%	0% - 9.25%	Yes
Pu-239	55	**7.91%**	0.09% - 71.11%	**53.62%**	8.23% - 66.29%	Yes
Pu-240	54	0.86%	0% - 15.63%	**21.41%**	0% - 28.16%	Yes
Pu-242	54	0.01%	0% - 2.34%	Trace	0% - 0.04%	Yes
U-233	0	Trace	0% - 0.00%	0.00%	0% - 0.00%	Yes
U-234	41	0.01%	0% - 0.17%	0.01%	0% - 0.20%	Yes
U-238	53	**90.32%**	0% - 99.89%	Trace	0% - 0.18%	Yes
Sr-90	51	Trace	0% - Trace	Trace	0% - 0.19%	Yes
Cs-137	51	Trace	0% - Trace	Trace	0% - 0.19%	Yes
Additional Radionuclides						
Ac-228	6	Trace	0% - 0.00%	Trace	0% - Trace	Yes
Am-243	52	Trace	0% - 0.01%	0.01%	0% - 0.11%	Yes
Bi-212	30	Trace	0% - Trace	Trace	0% - Trace	Yes
Bi-213	2	Trace	0% - Trace	Trace	0% - Trace	Yes
Bi-214	13	Trace	0% - Trace	Trace	0% - Trace	Yes
Cf-249	2	Trace	0% - Trace	Trace	0% - Trace	Yes
Cm-243	31	Trace	0% - Trace	Trace	0% - 0.52%	Yes
Co-60	8	Trace	0% - Trace	0.01%	0% - 4.51%	Yes
Eu-152	27	Trace	0% - Trace	Trace	0% - Trace	Yes
Eu-154	1	Trace	0% - Trace	Trace	0% - Trace	Yes
K-40	49	0.24%	0% - 90.79%	Trace	0% - 0.06%	Yes
Na-22	23	Trace	0% - Trace	Trace	0% - Trace	Yes
Np-237	53	0.03%	0% - 3.95%	Trace	0% - 0.02%	Yes
Pb-212	33	Trace	0% - Trace	Trace	0% - Trace	Yes
Th-229	2	Trace	0% - Trace	Trace	0% - 0.01%	Yes
Tl-208	45	Trace	0% - Trace	Trace	0% - Trace	Yes
T-l209	3	Trace	0% - Trace	Trace	0% - Trace	Yes
U-235	40	0.57%	0% - 45.24%	Trace	0% - Trace	Yes

1. This listing indicates the total weight percent of each radionuclide over the waste stream.
2. This listing indicates the total activity (curie) percent of each radionuclide over the waste stream.
3. This listing is the weight percent range of each radionuclide on a container-by-container basis. Radionuclides with "0" listed as the lower range indicate that at least one container did not report that radionuclide.
4. This listing is the curie percent range of each radionuclide on a container-by-container basis.
5. "Trace" indicates <0.01 percent for that radionuclide.

To augment the evaluation of certified assay data from the previously certified waste stream AECHHM, non-certified assay data from containers in waste stream ID-AECHHM were evaluated for the relative radionuclide weight and activity for waste stream ID-AECHHM. Available data was obtained for the 32 containers in waste stream ID-AECHHM reported prior to shipment of these containers from Argonne to the AMWTP. The following table, Radionuclide Distribution of Non-Certified Data for Waste Stream ID-AECHHM, summarizes the radionuclides identified in the non-certified data (Reference U3006).

Radionuclide Distribution of Non-Certified Data for Waste Stream ID-AECHHM

Radio-nuclide	Container with Reported Radio-nuclide	Total Radio-nuclide Weight %[1, 5]	Radionuclide Weight% Range for Individual Containers[3]			Total Radio-nuclide Curie%[2,5]	Radionuclide Curie% Range for Individual Containers[4]			Expected Present (Yes/No)
WIPP Required Radionuclides										
Am-241	32	0.01%	Trace	-	2.54%	1.89%	0.01%	-	21.99%	Yes
Pu-238	31	0.01%	0%	-	0.17%	6.74%	0%	-	56.99%	Yes
Pu-239	32	**3.46%**	0.10%	-	98.22%	8.33%	0.46%	-	38.86%	Yes
Pu-240	31	1.26%	0%	-	13.87%	**11.11%**	0%	-	58.47%	Yes
Pu-242	11	0.06%	0%	-	0.81%	Trace	0%	-	0.28%	Yes
U-233	23	1.26%	0%	-	11.31%	0.47%	0%	-	8.90%	Yes
U-234	5	Trace	0%	-	1.18%	Trace	0%	-	Trace	Yes
U-238	24	**86.07%**	0%	-	98.66%	Trace	0%	-	0.05%	Yes
Sr-90	8	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Cs-137	2	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Additional Radionuclides										
Ac-227	1	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Am-243	5	Trace	0%	-	0.09%	Trace	0%	-	0.07%	Yes
Be-7	2	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Bi-207	1	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Bi-212	3	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Bi-214	12	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Cf-252	1	Trace	0%	-	Trace	0.08%	0%	-	0.18%	Yes
Cm-243	6	Trace	0%	-	Trace	Trace	0%	-	0.10%	Yes
Cm-244	2	Trace	0%	-	0.40%	Trace	0%	-	85.09%	Yes
Co-60	7	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Cs-137	31	Trace	0%	-	Trace	Trace	0%	-	0.61%	Yes
Eu-150	6	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Eu-152	7	Trace	0%	-	Trace	Trace	0%	-	0.01%	Yes
Eu-154	25	Trace	0%	-	Trace	0.02%	0%	-	0.28%	Yes
Eu-155	2	Trace	0%	-	Trace	Trace	0%	-	0.04%	Yes
K-40	21	4.69%	0%	-	43.46%	Trace	0%	-	0.01%	Yes
Na-22	5	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Np-237	29	0.17%	0%	-	25.85%	Trace	0%	-	0.02%	Yes
Pb-212	6	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Pb-214	1	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Pu-241	27	0.02%	0%	-	4.48%	**71.24%**	0%	-	99.00%	Yes
Ra-226	1	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Th-229	1	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Th-230	5	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
Th-232	6	1.72%	0%	-	35.73%	Trace	0%	-	Trace	Yes
Th-234	4	Trace	0%	-	Trace	Trace	0%	-	0.01%	Yes
U-232	2	Trace	0%	-	Trace	Trace	0%	-	Trace	Yes
U-235	25	1.26%	0%	-	73.56%	Trace	0%	-	Trace	Yes

1. This listing indicates the total weight percent of each radionuclide over the waste stream.
2. This listing indicates the total activity (curie) percent of each radionuclide over the waste stream.
3. This listing is the weight percent range of each radionuclide on a container-by-container basis. Radionuclides with "0" listed as the lower range indicate that at least one container did not report that radionuclide.
4. This listing is the curie percent range of each radionuclide on a container-by-container basis.
5. "Trace" indicates <0.01 percent for that radionuclide.

Based on combining the data in the tables above, the two prevalent radionuclides by mass are U-238 and Pu-239, and the two prevalent radionuclides by activity are Pu-239 and Pu-241. Although U-238 is the most prevalent radionuclide by mass in the waste stream as a whole, U-238 was not identified in all containers and will not be the prevalent radionuclide in all containers. Additionally, review of the reported data on a container basis shows the highest activity radionuclides may include Cm-244, Pu-238, or Pu-240 (References C3004, U3002, U3006, U4011, and U4012).

Payload management will not be utilized for this waste stream.

Source Documents

Source Document Tracking Number	Title
AE-C-003	Historic Operations in Building 212, D-Wing
AE-C-004	Record of Communication; Analytical Chemistry Laboratory Operations and Locations
AE-C-006	Discussion with Cindy Rock; Waste Management Operations
AE-C-011	Two D&D Projects in Building 212, D-wing
AE-C-013	Discussion with Don Graczyk; ACL Facility Descriptions for Bldg 200
AE-C-015	Discussion with Seth Snyder and Al Youngs; Chemistry Division operations in Building 200, M-Wing and general description of Building 200
AE-C-016	Cave Area Description (for Building 200)
AE-C-017	Communication with Terri Bray; Nonmixed RH TRU drums from the AGHCF
AE-C-019	Chemical Usage at NBL for plutonium and uranium analysis - Conversation with Alma Stiffin and Iris Frank
AE-C-022	Correspondence with Terri Bray re: Chemical Usage in the AGHCF
AE-C-024	Email communications between G. Lasswell and D. Hecker and D. McNamee concerning details for certain waste requisitions and containers
AE-C-025	Conversation with Dan Hecker: Disposition of drums from Buildings other than 200, 205, 212, and 350.
AE-C-027	Operations in Building 315
AE-C-032	NCR-ANLE-0019-02
AE-C-035	NCR-ANLE-0074-02
AE-C-036	NCR-ANLE-0111-02
AE-C-037	NCR-ANLE-0110-02
AE-C-042	Interview with Amrit Boparai, Analytical LabManager
AE-D-004	Acceptable Knowledge Source Document Discrepancy re: hazardous constituents
AE-D-005	Resolution of NBL chemical usage and chemicals present in AE-CH-H-M waste stream
AE-D-011	Source Document Discrepancy Resolution
AE-D-012	Source Document Discrepancy Resolution
AE-I-001	Separation of Plutonium by Mini Anion-Exchange
AE-I-002	IFR Fuels Work
AE-I-003	Determination of the Isotopic Composition of Plutonium By Thermal Ionization Mass Spectrometry
AE-I-004	Dissolution of Plutonium Containing Materials Using Sealed Reflux
AE-I-005	Determination Of Weight Loss of Plutonium Oxide on Heating
AE-I-006	Determination of Specific Gravity and Density of Plutonium Solutions
AE-I-007	IFR Fuels Development
AE-I-008	IFR Fuel Interdiffusion Studies (Dayananda) Test Capsule Evaluation
AE-I-009	Determination of Plutonium by Controlled Potential Coulometry
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
AE-I-011	Clad/Fuel Diffusion Studies - As Received U-Pu-Zr Materials
AE-I-012	SDI Cermet Fuel Fab -Glovebox Facility

Source Document Tracking Number	Title
AE-I-013	Field Work Proposal - Multi-megawatt Nuclear Space Power Systems; Reactor Fuels - Cermet Development
AE-I-014	Bi-Monthly Report on Cermet Fuels - April/May 1987; Process Integration and Verification
AE-I-015	Sequence of Events for Camphor Coating Studies of UN Powder
AE-I-016	Fissile Scrap Passivation, Activity 41603
AE-I-017	Passivation Report
AE-I-028	Safety Review - Plutonium Experiment in G-118
AE-I-029	Trip Report Visit to LANL and Rocky Flats Analytical Laboratory
AE-I-030	Safety Review - Proposed Experiment - Alpha Radiolysis of TRUEX-CCl4 with 241Am
AE-I-031	Safety Review-PFP Waste Demonstration Run in G-117
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 G102
AE-I-034	Determination of Uranium by Ferrous Reduction in Phosphoric Acid and Titration with Dichromate (NBL Titrimetric Method)
AE-I-035	Determination of Uranium by Automated Constant Current Coulometry
AE-I-038	Safety Review - Pu Extraction Experiments In G118
AE-I-039	Safety Review of ICP/AES for Analysis of Radioactive Samples
AE-I-040	Safety Review Alpha Particle Irradiation of Plastic Materials
AE-I-044	Safety Review for Processing NBL Waste Solutions in G-134 and G-117
AE-I-046	Safety Review for the Gas Generation Studies in Support of the WIPP
AE-I-047	Safety Review Stripping Salt Previously Used in the Box 1 Electrorefiner in G-118
AE-I-048	Safety Review for Furnace Demonstration Test in Building 205, G-109
AE-I-049	CMT Division Separation Science and Technology Section - January 1992
AE-I-050	Revised Criticality Hazards Control Statement for IFR Fuels Reprocessing Laboratory G-118 Located in Building 205
AE-I-051	Safety Review for Sealing and Opening Vials Irradiated with 60Co Irradiation Facilities – Building 205, Room X-109
AE-I-052	Safety Review for CM-1725-10 VT Furnace Operations in Building 205, G109 Pu Glovebox
AE-I-054	CMT Division Separation Science and Technology Section
AE-I-055	IFR Fuel Processing Program Monthly Report - December 1993
AE-I-070	Safety Review for Unsaturated Testing of Uranium Metal Spent Fuel in Building 205 Senior Cave and K-116 Facilities
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 Tests
AE-I-073	PCT Testing of Pu-Containing Glass-Bonded Sodalite in Building 205, Labs G-109 and G-133
AE-I-077	Packaging Procedures
AE-I-078	Manual Determination of the Density and Specific Gravity of Uranium-and Plutonium-Containing Solutions
AE-I-084	Determination of Uranium by the New Brunswick Laboratory High Precision Titrimetric Method-Gravimetric Version
AE-I-106	Preparation of Standard Potassium Dichromate Titrant

Source Document Tracking Number	Title
AE-I-107	Preparation of Uranium Standard Solutions
AE-I-109	Preparation and Standardization of Potassium Dichromate Titrant
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
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
AE-I-128	Standard Operating Procedure Gross Alpha and Beta Radioactivity
AE-I-130	Standard Operating Procedure: Cleaning of Mixed Waste Glassware
AE-I-131	Standard Operating Procedure: Volatile Organic Analysis for Mixed Waste
AE-I-148	Standard Operating Procedure: Sample Preparation for Semivolatiles in Liquid Mixed Waste Using Liquid-Liquid Extraction
AE-I-149	Standard Operating Procedure: Determination of Strontium in Environmental Water Samples
AE-I-150	Standard Operating Procedure: Determination of Strontium in Environmental Soils and Vegetations
AE-I-165	Transfer Request to Building 205 of Waste Pails: 288636: 28772, 289777: 288570: 289771
AE-I-181	Basic and Applied Studies in Liquid-Liquid Extraction, Ion Exchange, and Extraction Chromatography
AE-I-184	Characterization of New Chelating Agents
AE-I-186	Two-Stage Molecular Recognition
AE-I-187	Synthesis of Compounds for Chemical Separations
AE-I-188	Determination of waste generated in Buildings 108, 202, 203, 206, 223, 306, 315 and 331
AE-I-192	Evaluation of Chemicals used by the Analytical Chemical Laboratory
AE-I-193	Evaluation of Chemicals used by the Chemistry Division
AE-I-195	ANL-E At Files
AE-I-199	Attachment 12 - Acceptable Knowledge Reevaluation Checklist, CCP-TP-005, Rev.6
AE-P-005	Decontamination and Decommissioning of 61 Plutonium Gloveboxes in D-Wing, Building 212, Argonne National Laboratory-East: Final Project Report
AE-P-006	Revision II (Final) to the Argonne National Laboratory - East RCRA Part B Permit Application IL3 890 008 946
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)
AE-P-009	RCRA Part B Permit Issued to Department of Energy Argonne National Laboratory - East Facility
AE-P-010	RCRA Part B Permit issued to DOE ANL-E Facility, Modification 1
AE-P-022	Basic Research in the Mission Agencies
AE-P-027	Frontiers: Research Highlights 1946-1996
AE-P-028	A Brief History of Materials R&D at Argonne National Laboratory from the Met Lab to Circa 1995
AE-P-029	Materials and components Technology Division Research Summary - 1987

Source Document Tracking Number	Title
AE-P-030	Materials and Technology Division Annual Review - 1983
AE-P-031	Materials Science and Technology Division Annual Review-1982
AE-P-032	Annual Progress Report for 1965 Metallurgy Division
AE-P-033	Annual Progress Report for 1964 Metallurgy Division
AE-P-034	Annual Report for 1963 Metallurgy Division
AE-P-035	Annual Report for 1962 Metallurgy Division
AE-P-036	Annual Report for 1961 Metallurgy Division
AE-P-037	Annual Report for 1958 Metallurgy Division
AE-P-038	Criticality Hazards Control Building 212, Wing D, Special Facility FD12, Materials Science Division
AE-P-042	Application of Advanced Liquid Metal Reactors to the Destruction of Radioactive Wastes
AE-P-043	The Liquid metal Fast Breeder Reactor: Promises and Uncertainties
AE-P-044	Safety Analysis Report - New Brunswick Laboratory
AE-P-045	Draft Safety Analysis Report - New Brunswick Laboratory
AE-P-047	The Integral Fast Reactor - A Practical Approach to Waste Management
AE-P-049	Safeguards Operations in the Integral Fast Reactor Fuel Cycle
AE-P-051	Proliferation Resistance of the Fuel Cycle for the Integral Fast Reactor
AE-P-052	Spacelift 2025
AE-P-053	Nuclear Thermal Propulsion
AE-P-054	Safety Analysis Report Building 205 G-Wing and K-Wing Laboratories
AE-P-055	Chemical Technology Division Annual Technical Report 1997
AE-P-056	Chemical Technology Division Annual Technical Report 1998
AE-P-057	Chemical Technology Division Annual Technical Report 1982
AE-P-058	Chemical Technology Division Annual Technical Report 1983
AE-P-059	Chemical Technology Division Annual Technical Report 1984
AE-P-060	Chemical Technology Division Annual Technical Report 1987
AE-P-061	Chemical Technology Division Annual Technical Report 1989
AE-P-062	Chemical Technology Division Annual Technical Report 1986
AE-P-063	Chemical Technology Division Annual Technical Report 1990
AE-P-064	Chemical Technology Division Annual Technical Report 1991
AE-P-065	Chemical Technology Division Annual Technical Report 1992
AE-P-066	Chemical Technology Division Annual Technical Report 1993
AE-P-067	Chemical Technology Division Annual Technical Report 1995
AE-P-070	Transuranic Waste Baseline Inventory Report
AE-P-071	Institutional PLAN FY 1980-FY 1985
AE-P-072	Institutional Plan August 1980
AE-P-073	Institutional Plan FY 1983 - FY 1988
AE-P-074	Institutional Plan FY 1984-FY 1989
AE-P-075	Institutional Plan FY 1985-1990
AE-P-076	Institutional Plan FY 1986 - FY 1991
AE-P-077	Institutional Plan FY 1987 - FY 1992
AE-P-078	Institutional Plan FY 1988 - FY 1993
AE-P-079	Institutional Plan FY 1989 - FY 1994
AE-P-080	Institutional Plan FY 1990 - FY 1995

Source Document Tracking Number	Title
AE-P-081	Institutional Plan FY 1991 - FY 1996
AE-P-082	Institutional Plan FY 1992 - FY 1997
AE-P-083	Institutional Plan (FY 1993 - FY 1998)
AE-P-084	Institutional Plan FY 1994 - FY 1999
AE-P-085	Institutional Plan FY 1995 - FY 2000
AE-P-090	Argonne National Laboratory - East Site and Location Map
AE-P-095	Waste Operations Operating Manual
AE-P-096	Container Management Practices (Chapter 2.12 of Waste Management Operating Procedures Manual)
AE-P-099	Waste Management Operating Procedures Manual: historic Addendum 4 B
AE-P-106	Alpha-Gamma Hot Cell Facility (AGHCF) Safety Analysis Report
AE-P-107	Surveys of Research in the Chemistry Division - 1988
AE-P-108	Surveys of Research in the Chemistry Division- 1990
AE-P-109	Surveys of Research in the Chemistry Division - 1992
AE-P-110	Surveys of Research in the Chemistry Division - 1994
AE-P-111	Chemical Sciences KC-03 Program Budget -Fiscal Years 1997, 1988, and 1999
AE-P-112	Environmental Management (Defense Funds) Field Work Proposals - Fiscal Years 2000, 2001, and 2002
AE-P-124	Chemical Technology Division; Vision, Mission, and Management Philosophy of CMT
AE-P-125	Chemistry Division; Strategic Research at the Frontiers of Chemistry
AE-U-5	General Description of Building 200
C012	Intra-Laboratory Memo to Operations Personnel re: Facility Nitrogen Purge Change and Storage of Flammable Liquids
C013	Correspondence to Mr. E. M. King, Oak Ridge National Laboratory re: Radioactive Waste
C014	Correspondence to A. Cohen re: Process and Procedure with all and WMO for Sampling 1st Stage HEPA Filters. Description-8'x8'x3' w/ 5/8' Wood Frame Ultra Aire – MSA
C016	Intra-Laboratory Memo to C. E. Crouthamel, CMT, and M. J. Steindler, CMT re: LWR Hot-Cell Capability at ANL-E: The D-200 M-Wing Situation
C020	Intra-Laboratory Memo to Environmental Compliance Representatives re: Photo Processing Solutions – Waste Characterization
C029	Letter re: Survey of Waste Streams in Building 212
C035	Intra-Laboratory Memo to Distribution re: Management of Broken Fluorescent Lamps
C041	Intra-Laboratory Memo to Distribution re: Solid Radioactive Waste Drum Failure
C046	Intra-Laboratory Memo to D. C. Parzyck re: DOE request for Information Regarding Materials Not Classified as Waste
C066	Record of Communication with Bill Kettman and Dennis Donahue, AGHCF re: AGHCF Operations and Waste Packaging
C074	Letter to Mr. Hilary Rauch, Manager, U.S. Department of Energy re: "TREAT Experiment Program"
C081	Intra-Laboratory Memo to Larry Neimark, ET re: Use of Carbon Tetrachloride in Alpha Gamma Hot Cell Facility (AGHCF) Experiments
C082	Fax to Ray Lang, DOE-CH re: ANL-E fuel Pins

Source Document Tracking Number	Title
C088	Correspondence to Mr. W. M. Heileson, Waste Generator Interface, EG&G Idaho, Inc. re: Content of ANL-E RHTRU Drums Stored at INEL
C091	Correspondence to W. Mahlon Heilson, Waste Management, RWMC Technical Support, EG&G Idaho, Inc. re: Lead in Remote Handled Transuranic Waste Stored at Idaho National Engineering Laboratory (INEL)
C094	Correspondence to L.Neimark, Materials & Components Technology re: Metallographic Samples
C108	Correspondence to Mr. J. T. Case, U.S. Department of Energy, Idaho Field Office re: Strategy Plan for Long-term Management and Storage of Remote-handled (RH) Transuranic (TRU) Waste - TLC-224-92
C116	Fax to M. Heileson re: Pelletized Clay
C137	Email to Douglas W. Parker re: RH TRU Waste
C138	Intra-Laboratory Memo to Distribution re: Hot-cell Survey
C143	FAX to Cheryl Schulz re: Information on AGHCF Mercury Vapor Lamps and Lighting Fixtures
C147	Letter to Mr. John M. Schaffer, Project Director, RWMC Completion Project, Bechtel BWXT Idaho, LLC re: Additional Information to Complete Actions Associated with Preexisting Condition (PEC) 316 - Argonne National Laboratory-East (ANL-E) Transuranic Waste
C148	Interview of Terri Bray, ANL-E AGHCF Manager re: Lead Solder and First Stage HEPA Filters
C155	Intra-Laboratory Memo to D. A. Donahue MCT re: Work Plan for the Preparation of Specimens for NPR Tests MA-2, -3, and -4
C157	Intra-Laboratory Memo to L. Neimark MCT re: Test Specification and Operating Procedure for NPR Tests ALCL-1 and -2.
C160	Fax Memo to Mahlon Heileson, LITCO/RWMC re: Underlying Hazardous Constituents Waste Stream ANL212951004T
C333	Memo to CCP Central Records: Assessment of Waste material Parameters (WMPs) for Waste Stream AERHDM
C335	CCP Review Comments and Resolutions for Draft A, Rev. 0, CCP-AK-ANLE-500
C341	IT Shaw Discrepancy Report R4 - RH TRU Waste from ANL-E- AGHCF, Re: Possible Presence of Lead in Waste
C353	Discussions with Seth Snyder and Al Youngs; Chemistry Division Operations in Building 200, M-Wing and General Description of Building 200
C354	Miscellaneous Cave Area Description (for Building 200) from Tory Steed
C356	Letter to C.E. Johnson; Monthly Report on EXXON/EPRI Program RP 306 for November 1978
C812	Memo from T. S. Bray & R. V. Strain to M. Goldberg, Characterization of N-Reactor Fuel Samples
C2002	Memo to Dr. Frank Y. Fradin Safety Analysis Report (SAR) Revision 02 and Technical Safety Requirements (TSRs) Revision 01 for the Argonne National Laboratory - East (ANL-E) Building 205 G & K Wing Laboratories
C2003	Memo from Robert C. Wunderlich to Dr. Hermann A. Grunder regarding Approval of the Safety Analysis Report (SAR) Revision 04 and the Technical Safety Requirements Revision 03 for Building 205 G-Wing and K-Wing Laboratories

Source Document Tracking Number	Title
C2004	Safety Review for Unsaturated Testing of Uranium Metal Spent Fuel in Bldg. 205 Senior Cave and K-116 Facilities
C2005	Safety Review of Tests with Samples of Spent Fuel in Bldg. 205, K-104 (Senior Cave) and, in K-116, Sampling of Leachate Solutions from the Tests
C2006	Work Plan for the Preparation of Unirradiated Al-clad Specimens for CMT
C2007	Work Plan for the Preparation of Specimens from the Characterization of Pins UW02010 (A/G 498A) and UW08036 (A/G 498B)
C2009	Communication from Laura E. Maggos regarding 205 K-Wing - contactor cleaning solutions
C2011	ANL Memo to R.J. Page re: Estimating Mass and Radioactivity for EBR-2 Element Segments Stored in Building 212 - More Numbers
C2022	ANL Memo to R.J. Page re: Pu-241/Am-241 Cooling Effects for EBR-2 Element T473
C2023	ANL Memo to R.J. Page re: Estimating Mass and Radioactivity for FFTF Element Segments Stored in Building 212 - More Numbers
C2024	ANL Memo to R.J. Page re: Estimating Mass and Radioactivity for EBR-2 and PFR Element Segments from the TREAT Facility Stored in Building 212 - More Numbers
C3002	Evaluation of Waste Material Parameter Weights for Waste Streams AECHDM-PK and AECHHM-PK
C3003	Interview and Follow-up Correspondence with Robert Schulten: Packaging of Waste Streams AECHDM-PK and AECHHM-PK
C3004	Default Plutonium Distributions in Waste Streams ID-AECHDM and ID-AECHHM
C4001	Intra-Laboratory Correspondence; Subject: Building 205, Room G-109 Glovebox Process Knowledge
C4002	Intra-Laboratory Correspondence; Subject: G-133 Glove box
C4003	Intra-Laboratory Correspondence; Subject: G-133 Glovebox - Information for RWP and Determination of Need for ALARA Review
C4004	CBFO Discrete Radiological Source Notification and Approval
C4005	Review of Non-Certified NDA Data for Prevalent Radionuclides in Waste Streams AECHDM-PK and AECHHM-PK
DR3001	Resolution of Discrepancies Associated with the Assignment of EPA HWNs to Waste Streams AECHDM-PK and AECHHM-PK
DR3002	Resolution of Discrepancies Associated with the Assignment of Containers RW48078 and RW48190 to Waste Stream AECHDM-PK
DR3003	Resolution of Discrepancies Associated with Beryllium Oxide Crucible Pieces in Container RW48192
DR3004	Resolution of Discrepancies Associated with Beryllium Oxide in Container RW48190
P002	Central Characterization Project Acceptable Knowledge Summary Report for Argonne National Laboratory-East Contact-Handled TRU Waste Facility Maintenance and Laboratory Operations
P004	Safety Analysis Report for the Alpha-Gamma Hot Cell Facility
P013	Frontiers: Research Highlights 1946-1996
P023	Argonne National Laboratory-East Remote Handled Waste
P027	Preliminary Engineering Proposal on Alpha-Gamma Hot Laboratory for Fuels Technology Center, Argonne National Laboratory
P038	AGHCF Operations Manual: 15.13 Procedure for Installing a Modified D-301 Window Tank in a Type A Window Cavity

Source Document Tracking Number	Title
P039	AGHCF Operations Manual: 15.15 Procedure for Installing Lead Shielding Around a Tank Insert in an AGHCF Window Cavity
P061	Examination Techniques for High Burnup U-Pu Elements for Fast Breeder Reactors
P062	AGHCF Operations Manual: 7.15 Preparation of Metallographic Specimens
P068	AGHCF Operations Manual: 7.14 Mounting Metallographic Specimens
P069	AGHCF Operations Manual: 7.13 Fuel Element Sectioning
P070	AGHCF Operations Manual: 7.21 Specimen Density by Immersion
P327	Procedure for Thinning Gauge Sections of Tensile Specimens after Tensile Tests
P329	Feasibility Study for Defueling Irradiated Cladding Using Non-Volatile Methods
P378	Argonne National Laboratory-East Building 212 Energy Technology Division Alpha-Gamma Hot Cell Facility Preliminary Decontamination and Decommissioning Plan
P380	Alpha-Gamma Hot Cell Facility (AGHCF) Safety Analysis Report
P389	AGHCF Supplemental Instructions for IRIS-11
P392	Procedures for Conducting Tests in the Whole-Pin furnace System (IPS-2-04-00)
P410	Changing a Final HEPA Filter in the Main Exhaust
P412	Remote Handled Transuranic Waste Sorting and Packaging
P416	Chemical and Other Regulated Waste Management
P484	Installing a Type A "Tank-in-a-Tank" Window Assembly
P485	Procedure for Installing Lead Shielding Around a Tank Insert in an AGHCF Window Cavity
P487	Installation of Lead-Glass Glovebox Window Panes
P489	Work Plan for Decontaminating the CTA after the Completion of the ANL/JNC Tensile Testing
P490	Work Plan for Diameter Measurements of Irradiated V-alloy Creep Specimens from the HFIR-2J Experiment
P507	Photography and Met of Weld Samples, Supplemental Instruction 252 for Rod/Specimen A/G 625A 1 through 14 in accordance with IPS-327-00-00
P520	PIE of RERTR-3
P521	Work Plan for Assessment of Auger Analyzer: Examination of NERI Stainless Steel Samples
P532	Complete Axial Specimen Preparation for Rod/Specimen ID: 592C2C, 592C14C Surry According to IPS-382-00-00
P536	Decontamination and Transfer of A/G 587 Tensile Specimens to Clean Vials Memo to IPS Document File
P537	Revised Work Plan for Unloading and Transferring Irradiated Stainless Steel Mechanical Test Specimens to Cell 2 of the IML
P539	Work Plan for Examination and Testing of Limerick Rod F9, Mid Segment, A/G 574C
P557	Load Train Assembly and Testing Procedure for Axial Tensile Testing of Surry Cladding, and Supplemental Instruction 338, Rev. 1 Memo to IPS Document File
P606	Status and Progress of the RERTR Program in the Year 2000
P607	Initial Assessment of Radiation Behavior of Very-High-Density Low-Enriched-Uranium Fuels

Source Document Tracking Number	Title
P616	Decontamination of Hot Cells K-1, K-3, M-1, M-3, and A-1, M-Wing, Building 200: Project Final Report Argonne National Laboratory-East
P815	Paper: Initial Assessment of Radiation Behavior of Very-High-Density Low-Enriched-Uranium Fuels
P816	IPS-269-04-01, Metallography on an Additional RERTR-1 Microplate, A/G 549V
P817	Additional Micro-Examination of Samples from the RERTR Program
P822	IPS-338-00-00, Work Plan for the Examination of Fuel Nano-Plates from the RERTR-3 Experiment in ATR ANL ID 6811
P826	Revised Work Plan for the Examination of Fuel Plates from the RERTR-5 Experiment in ATR ANL DOC ID 27225
P827	Recent Observations at the Postirradiation Examination of Low-Enriched U-Mo Miniplates Irradiated to High Burnup ANL DOC ID 29331
P829	Revised Work Plan for the Examination of Fuel Plates from the RERTR-4 Experiment in ATR ANL DOC ID 27220
P2000	Facility Hazard Category 2 Threshold Ratio Values for the K-Wing Nuclear Facility in Building 205
P2003	Elements Present in Leach Solutions from Unsaturated Spent Fuel Tests
P2011	Nuclear Operations Deactivation, Decommissioning, and Demolition Program: Appendix B: Building 205 K-Wing Hot Cell Deactivation Project Plan
P2016	Basis of Interim Operations for Building 205 K-Wing Deactivation
P2017	Determination of actinide and fission-product isotopes in very-high-burnup spent nuclear fuel
P2018	Safety Analysis Report Building 205 G-Wing and K-Wing Laboratories
P2021	The Dissolution and Analyses of the Dissolver Solution, Undissolved Residue, and Cladding from Big Rock Point Irradiated Nuclear Fuel
P2022	Results of the UREX+ Spent Fuel Demonstration
P2023	Results of the UREX+2 Spent Fuel Demonstration
P2026	Results of the 2006 UREX+1a Spent Fuel Demonstration
P2028	Preliminary Results of the UREX+3a Spent Fuel Demonstration
P2032	Building 212 Alpha Gamma Hot Cell Facility Deactivation Project Plan with Appendix 1, 2 and 3
P2033	Revised Estimate of the Radioactive Inventory in the AGHCF
P2034	Fuels for Sodium-Cooled Fast Reactors: US Perspective; article in Journal of Nuclear Materials
P3001	Packaging CH-TRU Waste for Shipment to Idaho National Laboratory (INL) and Final Disposition at the Waste Isolation Pilot Plant (WIPP)
P3002	Solidification and Packaging CH-TRU Liquid Waste for Shipment to Idaho National Laboratory (INL) and Final Disposition at the Waste Isolation Pilot Plant (WIPP); Bulking Tub Neutralization and Solidification
P3003	Solidification and Packaging CH-TRU Liquid Waste for Shipment to Idaho National Laboratory and Final Disposition at the Waste Isolation Pilot Plant; Bench Scale Neutralization and Solidification
P3004	Project-Specific Sampling and Analysis Plan (PSAP) Containerized Waste Material DQO and SAP Instructions; CH TRU Liquids Bulking/Neutralization/Solidification Project

Source Document Tracking Number	Title
P4001	Sorting, Inspection, and Packaging of CH-TRU Solid Waste Building 205 Glove boxes, for Shipment to Idaho National Laboratory (INL) and Final Disposition at the Waste Isolation Pilot Plant (WIPP)(JP-12-205G-004)
P4002	Solidification and Packaging CH-TRU Liquid Waste for Shipment to Idaho National Laboratory (INL) and Final Disposition at the Waste Isolation Pilot Plant (WIPP)(Work Plan 09-WM-093, Rev. 2)
P4003	Solidification and Packaging CH-TRU liquid Waste for Shipment to Idaho National Laboratory and Final Disposition at the Waste Isolation Pilot Plant (Work Plan 09-WM-094)
P4005	Sort and Package CH-TRU Solid Waste for Shipment to Idaho National Laboratory (INL) and Final Disposition at the Waste Isolation Pilot Plant (WIPP)
P4006	Nondestructive Assay
P4008	Project-Specific Sampling and Analysis Plan (PSAP) Containerized Waste DQO and SAP Instructions for 205 G133 & G109 Glove Box D&D
P4009	Non-Experimental Work Package: Decontamination of internal surfaces of Glovebox 205G-133 and 205G-109 and application of fixative
U004	Remote-Handled Waste Content Codes Assessed
U006	Summary of Purchasing Requisitions Received from T. Bray: Heavy Metals Usage Identified by IT That May Be in the RH-TRU Waste Stream
U015	RH-TRU 1995, Book 5, Drums 798 to 809.
U017	RH-TRU 1994, Book 8, Drums 778 to 797
U018	RH-TRU 1993, Book 7, Drums 748 to 777
U019	RH-TRU 1991-1992, Book 6, Drums 728 to 737
U021	RH-TRU 1990, Book 4, Drums 687 to 727
U022	RH-TRU 1985-1987, Book 3, Drums 617 to 686
U041	Videotape Logs
U045	Material Receipt and SPM Data for AG# 285
U065	Hand written Notes: One titled "Decon & Repair Procedures for Cleaning and Repairing a Manipulator"
U066	Addendum Criticality Safety Training Quiz 7/17 or 7/21/75
U068	Information on Fuel Elements DP-15, DP-17, DP-27, DP-32, DP-21, DP-24. DP-29, DP-45, and DP-61
U069	Information on Fuel Elements UBA-15, UBB-23, UCA-37, UCD-45, UCE-47
U070	Information on Fuel Element WT-185
U072	Material Safety Data Sheets (MSDS) – Benzene and other MSDSs
U074	Information on Fuel Element T61 of Subassembly X425
U076	AGHCF Fissile Inventory Management System Database
U083	HEPA Filters
U084	Report of Analytical Results
U085	Procedure for Determining Fuel Pellet Density Using a Mercury Prinometer (handwritten)
U321	Area 1 Hydrogenous Liquid Inventory (Limit 3L plus fluids sealed in equipment)
U332	Waste Requisitions - WMO-195, Radioactive and Mixed Waste Disposal Requisitions
U339	General Description of Building 200 Provided by Al Young
U1003	Argonne Special Material Receipt and Transfer Documentation by A/G Number

Source Document Tracking Number	Title
U2002	CMT Nuclear Materials Inventory Database - detail report with ratios and FGEs
U2007	RW85461 WMO-195 Radioactive and Mixed Waste Disposal Requisition
U2008	RW85462 WMO-195 Radioactive and Mixed Waste Disposal Requisition
U2009	RW85463 WMO-195 Radioactive and Mixed Waste Disposal Requisition
U2010	Contactor Cleaning Procedure
U3001	CH TRU Project Inventory to be Repackaged
U3002	WDS Query and Compilation of Radiological Data for Waste Streams AECHDM and AECHHM
U3003	Historic WMO-195 Waste Requisitions for containers repackaged into Waste streams AECHDM-PK and AECHHM-PK
U3004	Waste Streams AECHDM-PK and AECHHM-PK Waste Container Packaging Forms and Supporting Documentation
U3005	WMS Query for Repackaged CH Waste Streams AECHDM-PK and AECHHM-PK
U3006	Radionuclide Data for Waste Streams ID-AECHDM and ID-AECHHM
U4001	Bldg 205 NDA Results Apr-May, 2012
U4002	G-109 Inventory
U4003	Historic WMO-195 Radioactive and Mixed Waste Disposal Requisition and WMO-200 Recoverable Materials Processing Requisition Forms for Containers Repackaged into Waste Streams AECHDM-PK and AECHHM-PK
U4004	Waste Streams AECHDM-PK and AECHHM-PK Waste Container Packaging Forms and Supporting Documentation – 2012 Campaign
U4005	2012 Repackaging Campaign Inventory Summary
U4006	G-109 Inventory
U4007	G-133 Glovebox
U4009	Report of Analytical Results - PCB Analysis of Liquids from G133 and G109 Gloveboxes
U4010	Discrete Radiological Source Pictures and Container Documentation
U4011	Radionuclide Data for Waste Streams AECHDM-PK and AECHHM-PK with Containers Added During 2012 Campaign
U4012	AMWTP Response to EPA regarding AMWTP-Derived Weighted Averages for Prevalent Radionuclides in Argonne Homogeneous Waste Streams