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Department of Energy

**memorandum**NMED  
Hazardous Waste Bureau

Carlsbad Field Office

Carlsbad, New Mexico 88221

**DATE:** APR - 8 2014

**REPLY TO  
ATTN OF:** CBFO:NTP:JRS:PG:14-1890:UFC 5900.00

**SUBJECT:** Argonne National Laboratory – Central Characterization Program Recertification  
Audit A-13-24 and Expansion of EPA Approval for the Tier 1 Request Adding Five  
Containers to AERHDM Waste Stream

**TO:** Dale Dietzel, DOE-CH  
Robert L. McQuinn, President and Project Manager, Nuclear Waste Partnership LLC

The Carlsbad Field Office (CBFO) has completed the annual Recertification Audit A-13-24 of the Central Characterization Program (CCP) Transuranic (TRU) waste characterization activities deployed at the Argonne National Laboratory (ANL) (hereinafter referred to as ANL-CCP) conducted on August 27-29, 2013. The characterization, certification, quality assurance, and transportation elements of the remote-handled (RH) Summary Category Groups (SCGs) S5000 debris waste were determined to be adequate, satisfactorily implemented, and effective.

On July 12, 2013, the CBFO requested that the U.S. Environmental Protection Agency (EPA) approve as a Tier 1 change the addition of five (5) RH solidified liquids waste containers to the previously-approved debris waste stream AERHDM generated at ANL. The EPA provided approval on March 24, 2014, DOCKET NO: A-98-49; II-A4-181, therefore CBFO is expanding the certification of drums for disposal at the Waste Isolation Pilot Plant (WIPP) from ANL.

The audit teams determined that the ANL-CCP TRU programs were in compliance with the *Waste Analysis Plan (WAP)* of the Waste Isolation Pilot Plant (WIPP) *Hazardous Waste Facility Permit (HWFP)*, the CBFO *Quality Assurance Program Document (QAPD)*, the *TRU Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WIPP WAC)*, and the *RH Transuranic Authorized Methods for Payload Control (RH-TRAMPAC)*, *RH TRU 72B Safety Analysis Report (SAR)*, and *Remote-Handled TRU Waste Characterization Program Implementation Plan (WCPIP)*. The audit teams determined that the procedures/documents were effectively implemented.

Based on the results of the CBFO Audits/Surveillances (See Attachment 1), and conditions and limitations provided by the New Mexico Environment Department (NMED) and the EPA, the CBFO is authorizing ANL to include the five containers from ANL as part of the AERHDM waste stream and grants continued authority for the TRU waste characterization, certification, and transportation activities as identified in Table 1, Page 4 of this memorandum.

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The TRU waste characterization, certification, or transportation activities using significantly revised or new processes, procedures, or systems must be evaluated by the CBFO prior to their implementation. Included in this memorandum are the following attachments:

- *Attachment 1* describes the CCP certification program status,
- *Attachment 2* contains the list of processes/equipment from Table 1 of this memorandum certified at the site,
- *Attachment 3* contains the list of the CCP certified procedures/documents, and
- *Attachment 4* describes specific the CCP waste characterization process elements that must be reported to the EPA. These process elements are identified as Tier 1 changes and Tier 2 changes. The ANL-CCP shall not ship for disposal to the WIPP any wastes affected by a Tier 1 process element change without prior CBFO approval, and the CCP shall report Tier 2 changes to the CBFO on a quarterly basis.

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

  
Jose R. Franco, Manager  
Carlsbad Field Office

Attachments (4)

cc: w/attachments

G. Basabilvazo, CBFO \* ED  
M. Brown, CBFO ED  
N. Castaneda, CBFO ED  
S. McCauslin, CBFO ED  
D. Miehs, CBFO ED  
T. Morgan, CBFO ED  
M. Navarrete, CBFO ED  
M. Pinzel, CBFO ED  
J. R. Stroble, CBFO ED  
J. Frego, ANL-CH ED  
K. Joshi, ANL-CH ED  
E. Feltcorn, EPA ED  
R. Joglekar, EPA ED  
T. Peake, EPA ED  
S. Holmes, NMED ED  
J. Kieling, NMED ED  
T. Kliphuis, NMED ED  
R. Maestas, NMED ED  
C. Smith, NMED ED  
V. Cannon, NWP ED  
B. Carlsen, NWP ED  
J. Carter, NWP ED  
C. Chester, NWP ED  
D. Cook, NWP ED  
A. Fisher, NWP ED  
R. Galbraith, NWP ED  
K. Guillermo, NWP ED  
E. Gulbransen, NWP ED  
J. Haschets, NWP ED  
I. Joo, NWP ED  
R. Kantrowitz, NWP ED  
C. Kirkes, NWP ED  
S. Kouba, NWP ED  
C. Luoma, NWP ED

R. McGinnis, NWP ED  
J. Morrison, NWP ED  
W. Most, NWP ED  
L. Oberbeck, NWP ED  
S. Offner, NWP ED  
M. Percy, NWP ED  
M. Ramirez, NWP ED  
A. Ray, NWP ED  
R. Reeves, NWP ED  
F. Romo, NWP ED  
R. Romo, NWP ED  
B. Schrock, NWP ED  
P. Schilling, NWP ED  
M. Sensibaugh, NWP ED  
F. Sharif, NWP ED  
D. Stegman, NWP ED  
M. Strum, NWP ED  
C. Turner, NWP ED  
K. Urquidez, NWP ED  
M. Walentine, NWP ED  
R. Allen, CTAC ED  
V. Daub, CTAC ED  
P. Martinez, CTAC ED  
B. Pace, CTAC ED  
M. Carter, LANL-CO ED  
P. Gilbert, LANL-CO ED  
G. Lyshik, LANL-CO ED  
W. Weyerman, LANL-CO ED  
S. Percy, Stoller ED  
WIPP Operating Record ED  
CBFO M&RC  
\*ED denotes electronic distribution

<b>Table 1 ANL-CCP RH Certified Waste Characterization Processes</b>		
<b>Characterization Process</b>	<b>RH S5000 Debris</b>	
	<b>Newly generated</b>	<b>Retrievably-Stored Waste Stream AERHDM</b>
Acceptable Knowledge	N/A	APPROVED
Load Management	N/A	NOT APPROVED
Data Validation & Verification (V&V)	N/A	APPROVED
Visual Examination	N/A	APPROVED
Nondestructive assay (NDA)	N/A	N/A
Real-time Radiography (RTR)	N/A	N/A
Dose-to-Curie (DTC)	N/A	APPROVED
Dimensional Measurements	N/A	APPROVED
Gravimetric Measurements	N/A	NOT APPROVED
WIPP Waste Information System (WWIS)	N/A	APPROVED
<ul style="list-style-type: none"> <li>- Tier 1 approval adding 100 drums of AGHCF debris waste to waste stream AERHDM dated October 2008, A-98-49; II-A4-136.</li> <li>- Tier 1 approval adding K-Wing debris waste to waste stream AERHDM dated September 2010, A-98-49; II-A4-132.</li> <li>- Tier 1 approval adding 120 containers of AGHCF debris waste to waste stream AERHDM dated September 2010, A-98-49; II-A4-134.</li> <li>- Tier 1 approval adding AGHCF fuel pin FEW to waste stream AERHDM dated November 2010, A-98-49; II-A4-140.</li> <li>- Tier 1 approval adding K-Wing FEW to waste stream AERHDM dated February 2012, A-98-49; II-A4-158.</li> <li>- Tier 1 approval adding K-Wing Solidified Liquid Waste to waste stream AERHDM dated June 2012, A-98-49; II-A4-162.</li> <li>- Tier 1 approval adding AGHCF RERTR FEW and second batch of Fuel Pin FEW dated October 2012, A-98-49; II-A4-167.</li> <li>- Tier 1 approval adding 5 containers to the AERHDM waste stream dated March 2014, A-98-49; II-A4-181.</li> </ul>		

**CENTRAL CHARACTERIZATION PROGRAM  
CERTIFICATION PROGRAM STATUS  
AT Argonne National Laboratory**

The CBFO Director of the Office of the National TRU Program and the CBFO Director of the Office of Quality Assurance Program have evaluated the documentation supporting the compliance of the Central Characterization Program (CCP) TRU waste program deployed at the Argonne National Laboratory (ANL) (hereinafter referred to as ANL-CCP).

**PROGRAM STATUS**

- All program elements remain complete.
- The following site documents demonstrate how the CCP complies with the CBFO requirements\*:
  - **CCP-PO-001, Revision 21, CCP Transuranic Waste Characterization Quality Assurance Project Plan**  
Memorandum CBFO:NTP:JRS:PG:13-0487:UFC 5900.00, April 17, 2013;
  - **CCP-PO-002, Revision 27, CCP Transuranic Waste Certification Plan QAP – Section 4.0 of CCP-PO-002**  
Memorandum CBFO:NTP:JRS:PG:13-0593:UFC 5900.00 dated May 31, 2013;  
and
  - **CCP-PO-505, Revision 2, CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)**  
Memorandum CBFO:NTP:MP:PG:13-0435:UFC 5900.00 dated February 26, 2013.

**\*Note that the program documents listed above are the current revision and may not be the revision that was audited.**

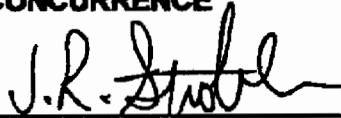
- Certified Systems – see Attachment 2 List of Processes/Equipment from Table 1 of this memorandum that is certified and used by the CCP at the ANL.
- Standard Operating Procedures – see Attachment 3 for the complete list of certified procedures/documents used by the CCP at the ANL.
- Tiering of the RH TRU Waste Characterization Processes – see Attachment 4 for the implementation by the CCP at ANL (based on EPA Baseline Inspections).

- The CBFO conducted the Recertification Audit A-13-24 of the ANL-CCP on August 27-29, 2013.
  - The Revised Interim Audit Report was issued on December 17, 2013.
  - The Final Audit Report was issued to NMED on November 22, 2013
  - The NMED approval on Audit A-13-24 was issued on January 9, 2014.
  - The EPA issued concurrence on the draft recertification memorandum on March 12, 2014.
  
- The CBFO conducted Audit A-13-11 of the CCP Quality Assurance Program on April 16-18, 2013.
  - CAR 13-024, CAR 13-025, CAR-026 were issued on April 29, 2013.
  - CAR 13-024 was closed on May 22, 2013.
  - CAR 12-025 was closed on May 29, 2013.
  - CAR 12-026 was closed on May 29, 2013.
  - The Audit Report was issued on May 31, 2013.
  
- The CBFO conducted Audit A-13-03 of the CCP CH and RH transportation activities for all sites on December 4-6, 2012.
  - The Audit Report was issued on January 23, 2013.
  
- The CBFO conducted Surveillance S-13-24 of the ANL-CCP loading and transportation activities for shipping RH waste using shielded containers on September 11-12, 2013.
  - The Surveillance Report was issued on September 24, 2013.
  - NMED issued their approval on December 10, 2013.
  
- CBFO conducted Audit A-13-19 on July 9-11, 2013 of the INL-CCP Analytical Laboratories for closeout of characterization and certification activities for *headspace gas analysis* of SCG S5000 and debris waste and *solids analysis* of SCGs S3000 homogeneous solids and S4000 soils/gravel waste.
  - The Interim Audit Report was issued on August 8, 2013.
  - The Final Audit Report was issued to NMED on November 4, 2013.
  - The NMED approval on Audit A-13-19 was issued on December 10, 2013.
  
- The EPA issued a Tier 1 approval adding the five RH solidified liquids waste containers to the previously-approved debris waste stream AERHDM generated at ANL on March 24, DOCKET NO: A-98-49; II-A4-181.
  
- The EPA issued concurrence on the draft recertification memorandum adding the Tier 1 approval for the five (5) containers for waste stream on April 3, 2014.

**RECOMMENDATION**

The recommendation to the CBFO Manager is authorizing CCP at the ANL to include the five (5) containers from ANL as part of the AERHDM waste stream and grants continued authority for TRU waste characterization, certification, and transportation activities of Remote-Handled Summary Category S5000 debris waste. Attachments 2 and 3 list the systems and procedures that constitute the bounds of this authority. Attachment 4 is the RH Tiering of TRU Waste Characterization Processes Implemented by the CCP at ANL.

**CONCURRENCE**



J. R. Stroble, Director  
Office of the National TRU Program

4-2-14

Date



M. Brown, Director  
Office of Quality Assurance

4/02/2014

Date

<b>CENTRAL CHARACTERIZATION PROGRAM</b>					
<b>List of Processes/Equipment Certified from Table 1 of Memo at Argonne National Laboratory</b>					
<b>WIPP WWIS #</b>	<b>Site Equipment # or Title</b>	<b>Description</b>	<b>Components</b>	<b>Software</b>	<b>NDA Calibrated Range, Operating Range and TMU</b>
8DTC1	Dose-to-Curie	Radiological characterization process using dose-to-curie (DTC) and modeling-derived scaling factors for assigning radionuclide values to RH waste stream AERHDM for which the scaling factors are applicable, as described in CCP-AK-ANLE-501.  Procedure CCP-TP-504	As identified in CCP-TP-504	As identified in CCP-TP-504	N/A
8RHGM1	Dimensional Measurements	Radiological characterization process using Dimensional Measurements of fuel pin specimen mass to determine each container's radionuclide content.  Procedure CCP-TP-513	As identified in CCP-TP-513	As identified in CCP-TP-513	N/A
8RHVE1	Audio/video review	The VE of audio/video media process used for retrievably-stored RH debris waste drums.  Procedure CCP-TP-500 & CCP-TP-163	N/A	N/A	N/A
8RHVE2	Visual Examination Activities	Visual Examination  Procedure CCP-TP-500	N/A	N/A	N/A



<b>CENTRAL CHARACTERIZATION PROGRAM LIST OF CERTIFIED PROCEDURES AT Argonne National Laboratory</b>		
#	Procedure No.	Procedure Title
1.	CCP-PO-001	CCP Transuranic Waste Characterization Quality Assurance Project Plan
2.	CCP-PO-002	CCP Transuranic Waste Certification Plan
3.	CCP-PO-005	CCP Conduct of Operations
4.	CCP-PO-006	CCP Conduct of Operations Matrix
5.	CCP-PO-500	CCP/ANL RH-TRU Waste Interface Document
6.	CCP-PO-505	CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)
7.	CCP-QP-001	CCP Graded Approach
8.	CCP-QP-002	CCP Training and Qualification Plan
9.	CCP-QP-005	CCP TRU Nonconforming Item Reporting and Control
10.	CCP-QP-008	CCP Records Management
11.	CCP-QP-010	CCP Document Preparation, Approval and Control
12.	CCP-QP-014	CCP Data Analysis and Trending
13.	CCP-QP-015	CCP Procurement
14.	CCP-QP-016	CCP Control of Measuring, Testing, and Data Collection Equipment
15.	CCP-QP-017	CCP Identification and Control of Items
16.	CCP-QP-018	CCP Management Assessment
17.	CCP-QP-019	CCP Quality Assurance Reporting to Management
18.	CCP-QP-021	CCP Surveillance Program
19.	CCP-QP-022	CCP Software Quality Assurance Plan
20.	CCP-QP-023	CCP Handling, Storage, and Shipping
21.	CCP-QP-026	CCP Inspection Control
22.	CCP-QP-027	CCP Test Control
23.	CCP-QP-028	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
24.	CCP-QP-030	CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel
25.	CCP-QP-032	CCP Written Practice for the Qualification of CCP Pressure Change Leak Testing Personnel
26.	CCP-TP-001	CCP Project Level Data Validation and Verification
27.	CCP-TP-002	CCP Reconciliation of DQOs and Reporting Characterization Data
28.	CCP-TP-005	CCP Acceptable Knowledge Documentation
29.	CCP-TP-030	CCP CH TRU Waste Certification and WWIS/WDS Data Entry
30.	CCP-TP-055	CCP Varian Porta-Text Leak Detector Operations
31.	CCP-TP-082	CCP Waste Container Filter Vent Operation
32.	CCP-TP-093	CCP Sampling of TRU Waste Containers
33.	CCP-TP-163	CCP Standard Visual Examination of Records
34.	CCP-TP-500	CCP Remote-Handled Waste Visual Examination
35.	CCP-TP-504	CCP Dose-to-Curie Survey Procedure for Remote-Handled Transuranic Waste
36.	CCP-TP-505	CCP Removable Lid Canister Loading
37.	CCP-TP-506	CCP Preparation of the Remote-Handled Transuranic Waste Acceptable Knowledge Characterization Reconciliation Report
38.	CCP-TP-507	CCP Shipping of Remote-Handled Transuranic Waste
39.	CCP-TP-509	CCP Remote-Handled Transuranic Container Tracking
40.	CCP-TP-512	CCP Remote-Handled Waste Sampling
41.	CCP-TP-513	CCP Procedure for Dimensional or Gravimetric Measurements for Radiological Characterization of Remote-Handled Transuranic Waste
42.	CCP-TP-530	CCP RH TRU Waste Certification and WWIS Data Entry

<b>CENTRAL CHARACTERIZATION PROJECT LIST OF DEACTIVATED PROCEDURES AT Argonne National Laboratory</b>			
<b>#</b>	<b>Deactivated Procedure No.</b>	<b>Deactivated Procedure Title</b>	<b>Deactivation Date</b>
1.	CCP-TP-043	CCP Chain of Custody for SUMMA® Canister Sampling Using the INL Analytical Lab – Incorporated in CCP-TP-093	9/11/07
2.	CCP-QP-004	CCP Corrective Action Management	02/06/13
3.	CCP-QP-006	CCP Corrective Action Reporting and Control	02/06/13
4.	CCP-QP-029	CCP Corrective Action Management	9/20/13
5.	CCP-TP-003	CCP Data Analysis for S3000, S4000, and S5000 Characterization	6/19/13
6.	CCP-TP-093	CCP Sampling of TRU Waste Containers	5/14/13
7.	CCP-TP-106	CCP Headspace Gas Sampling Batch Data Report Preparation	5/14/13
8.	CCP-TP-162	CCP Random Selection of Containers or Solids and Headspace Gas Sampling and Analysis	5/14/13
9.	CCP-PO-008	CCP Quality Assurance Interface with the WTS Quality Assurance Program	5/14/13

**Table 1. Tiering of RH TRU Waste Characterization Processes Implemented by ANL-CCP  
(Based on September 12–14, 2006, Baseline Inspection and Subsequent T1 Evaluations, Updated February 2014)**

RH Waste Characterization	ANL-CCP RH Waste Characterization Process - T1 Changes	ANL-CCP RH Waste Characterization Process - T2 Changes*
Acceptable Knowledge (AK)	<p>Any new waste streams not approved under this baseline</p> <p>Modification of waste stream AERHDM to include additional containers if the pedigree of the additional containers has not been approved by the baseline or a subsequent T1 approval</p> <p>Substantive modification** to EPA-approved AKSRs and certification confirmation test plans (e.g., CCP-AK-ANLE-500, CCP-AK-ANLE-502) that have the potential to affect the characterization process</p> <p>Implementation of load management for any RH waste stream</p> <p>Characterization of any Alpha Gamma Hot Cell Facility (AGHCF) or K-Wing fuel examination wastes (FEWs) other than the AGHCF and K-Wing fuel pin FEW, AGHCF Reduced Enrichment Research and Test Reactor FEW and AGHCF second batch of fuel pin FEW—specifically, characterization of AGHCF crucibles and melts FEW</p>	<p>Notification to EPA upon availability or nonsubstantive modification** of AKSRs and certification confirmation test plans (e.g., CCP-AK-ANLE-500, CCP-AK-ANLE-502)</p> <p>Notification to EPA upon availability or modification of:</p> <ul style="list-style-type: none"> <li>• The final DTC determination for RH containers in the approved waste stream</li> <li>• AK documentation as a result of Waste Characterization Program Implementation Plan revisions (e.g., CRR)</li> <li>• The list of references that document the assembly of fuel pin data and review process</li> <li>• The data package for this debris waste stream and any modifications or change notifications to the waste stream profile form, including the CRR, characterization information summary and AKSR</li> <li>• AK accuracy reports (annually at a minimum)</li> <li>• Attachment 4 of CCP-TP-005 that reflect the updated AKSR Source Document Reference List</li> <li>• Attachment 8 of CCP-TP-005 or Add Container Memoranda that have been added to Source Document C2029</li> <li>• ANL-CCP's decision regarding the disposition path for vitrified high-level waste from Savannah River Site and vitrified sludge from West Valley</li> <li>• The source document containing compiled information supporting Source Document U344</li> </ul> <p>Notification to EPA of the intention to add containers to waste stream AERHDM, including the approximate number of containers and volume(s) of waste, the timeframe for waste generation, characterization, and disposal and submission of an updated AKSR documenting that the pedigree of the additional containers is the same as those covered by the baseline and/or subsequent T1 approvals†</p> <p>Submission of a list of fully characterized containers from a population of additional containers proposed as a T2 change, above†</p>

**Table 1. Tiering of RH TRU Waste Characterization Processes Implemented by ANL-CCP**  
(Based on September 12–14, 2006, Baseline Inspection and Subsequent T1 Evaluations, Updated February 2014)

(Continued)

RH Waste Characterization Process Elements	ANL-CCP RH Waste Characterization Process - T1 Changes	ANL-CCP RH Waste Characterization Process - T2 Changes*
Radiological Characterization, including Dose-To-Curie (DTC)	<p>Use of any alternate radiological characterization procedure other than DTC with sampling-derived scaling factors as documented in CCP-TP-504 and CCP-AK-ANLE-501, Revision 0, respectively</p> <p>Substantive modification** to EPA-approved procedures or radiological characterization technical reports (e.g., CCP-TP-504, CCP-AK-ANLE-501)</p> <p>Any new waste stream not approved under this baseline or addition of containers to waste stream AERHDM that require changing the established radionuclide scaling factors</p> <p>Application of new (i.e., not EPA-approved scaling factors for isotopic determination other than those documented in CCP-AK-ANLE-501)</p> <p>Implementation of gravimetric analysis for waste other than debris will require EPA approval as a T1 change</p>	<p>Notification to EPA upon nonsubstantive modification** of the procedures or radiological characterization technical reports (e.g., CCP-TP-504, CCP-AK-ANLE-501) requiring CBFO approval</p> <p>Submission of an updated CCP-AK-ANLE-501 documenting that the radiological characterization processes used for the additional containers is the same as those covered by the baseline and/or subsequent T1 approvals†</p> <p>Submission of DTC BDRs or calculation packages for containers selected by EPA from a list of fully characterized containers provided by ANL-CCP†</p>
Visual Examination (VE)	<p>VE by reviewing existing audio/visual recordings for any waste summary category group not covered by this approval</p> <p>VE by any new process</p>	<p>Submission of VE BDRs for containers selected by EPA from a list of fully characterized containers provided by ANL-CCP†</p> <p>Substantive modification** to site procedures requiring CBFO approval</p> <p>Addition of new S5000 debris waste streams</p>
Real Time Radiography (RTR)	Any use of RTR requires EPA approval	N/A
WIPP Waste Data System (WDS)	None	Substantive modification** to site procedures requiring CBFO approval

New T1s, T2s and significant modifications to existing T1s or T2s are in bold text; T1s or T2s that were only revised for style are not shown in bold.

\* ANL-CCP will report all unmarked T2 changes to EPA quarterly.

\*\* "Substantive modification" refers to a change with the potential to affect ANL-CCP's RH waste characterization processes or documentation of them, excluding changes that are solely related to the environment, safety and health; nuclear safety; or the Resource Conservation and Recovery Act, or that are editorial in nature or are required to address administrative concerns. EPA may request copies of new references that DOE adds during a document revision.

† ANL-CCP will report this T2 change immediately.