

United States Government

Department of Energy

# memorandum

Carlsbad Field Office  
Carlsbad, New Mexico 88221

DATE: October 20, 2010

REPLY TO  
ATTN OF: CBFO:NTP:JRS:GS:10-1555:UFC 5900.00

SUBJECT: LANL-CCP Recertification Audit A-10-14

TO: George Rael, LASO  
Farok Sharif, General Manager, WTS



The Carlsbad Field Office (CBFO) has completed the recertification audit of the Central Characterization Project (CCP) transuranic (TRU) waste program deployed at the Los Alamos National Laboratory (LANL) (hereinafter referred to as LANL-CCP) Audit A-10-14 conducted April 27-29, 2010, at Los Alamos, New Mexico. The characterization activities were determined to be adequate, satisfactorily implemented and effective.

The CCP Quality Assurance Program (QAP) was audited during Audit A-09-10 on February 24-26, 2009, in Carlsbad, New Mexico. The CCP QAP was found to adequately address the upper-tier requirements of the CBFO Quality Assurance Program Document (QAPD) and is being effectively implemented.

CCP transportation activities were evaluated in Carlsbad, New Mexico on September 29 through October 1, 2009, during Audit A-09-27. Technical and quality assurance aspects of the transportation program were found to be effectively implemented.

The audit team determined that the LANL-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 QAPD, the Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WIPP WAC), and the TRAMPAC, TRUPACT-II Certification of Compliance. The audit team determined that the procedures/documents were effectively implemented.

Based on the result of Audits A-10-14, conditions and limitations provided by the New Mexico Environment Department (NMED) and the U.S. Environmental Protection Agency (EPA), CBFO will continue to have authority for the characterization, certification, and transportation activities of CH homogeneous solids (S3000) and CH debris (S5000) as identified in Table 1 of this memo. CBFO is also continuing the certification of the processes associated with the Off-Site Source Recovery Program (OSRP).

101036

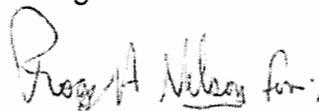


Table 1 LANL-CCP CH & RH Waste Characterization Processes						
Characterization Process	CH S3000 Homogeneous Solids		CH S5000 Debris		RH S5000 Debris (LA-MHD03.002 16 RH 72B canisters)*	
	Newly generated	Retrievably-Stored	Newly generated	Retrievably-Stored	Newly generated	Retrievably-Stored
Acceptable Knowledge (AK)	N/A	Approved	Approved <sup>1</sup>	Approved	N/A	Approved
Load Management	N/A	Approved	Approved <sup>1</sup>	Approved	N/A	N/A
Data Validation and Verification (V&V)	Approved	Approved	Approved	Approved	N/A	Approved
Headspace gas sampling and analysis <sup>2</sup>	Approved	Approved	Approved	Approved	N/A	N/A
Non-destructive assay (HENC1, HENC2) drum	N/A	Approved	N/A	Approved	N/A	N/A
Dose-to-Curie (DTC)	N/A	N/A	N/A	N/A	N/A	Approved
Real-Time Radiography (RTR)	N/A	Approved	N/A	Approved	N/A	N/A
Solids sampling and analysis <sup>3</sup>	Approved	Approved	N/A	N/A	N/A	N/A
Visual Examination (VE)	N/A	Approved <sup>4</sup>	Approved <sup>1</sup>	Approved	N/A	Approved
WIPP Waste Information System (WWIS)	Approved	Approved	Approved	Approved	N/A	Approved

<sup>1</sup> Off Site Recovery Program (OSRP) Activities-includes characterization of sealed sources for newly generated debris waste.  
<sup>2</sup> For CH waste, SUMMA sampling is performed by CCP, analysis is performed by the Idaho National Laboratory, which is approved under a separate certification. For RH waste, NMED granted exemption by approving an AK Sufficiency Determination on April 16, 2009.  
<sup>3</sup> Solid sampling and analysis done by IN Laboratory.  
<sup>4</sup> Pending CBFO surveillance of VE  
 \* RH S5000 Debris (LA-MHD03.002 16 RH 72B canisters) was approved and shipped.

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

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



Edward Ziemianski  
Acting Manager

Attachment(s)

cc: w/attachments

O. Vincent, CBFO	*ED
B. Mackie, CBFO	ED
C. Fesmire, CBFO	ED
J. R. Stroble, CBFO	ED
N. Castaneda, CBFO	ED
A. Holland, CBFO	ED
D. Miehl, CBFO	ED
M. Navarrete, CBFO	ED
J. Edwards, EPA	ED
T. Peake, EPA	ED
E. Feltcorn, EPA	ED
R. Joglekar, EPA	ED
R. Lee, EPA	ED
A. Perrin, EPA	ED
S. Zappe, NMED	ED
F. Sharif, WTS	ED
D. Haar, WTS	ED
D. Ploetz, WTS	ED
M. Percy, WTS	ED
M. Sensibaugh, WTS	ED
I. Quintana, WTS	ED
S. Peterman, WTS	ED
R. Chatfield, WTS	ED
J. Harvill, WTS	ED
D. Hofer, WTS	ED
C. Kirkes, WTS	ED
D. Kump, WTS	ED
D. Speed, WTS	ED
D. Standiford, WTS	ED
M. Strum, WTS	ED
A. Johnson, WTS	ED
B. Nieman, WTS	ED
P. Martinez, Portage	ED
B. Pace, Portage	ED
S. Percy, Triumph	ED
P. Gilbert, LANL	ED
G. Lyshik, LANL	ED

CTAC Controlled Document Coordinator  
WIPP Operating Record  
CBFO M&RC

\*ED denotes electronic distribution

## CENTRAL CHARACTERIZATION PROJECT DEPLOYMENT AT LOS ALAMOS NATIONAL LABORATORY CERTIFICATION PROGRAM STATUS

The CBFO Director of the Office of the National TRU Program and the CBFO Director of Quality Assurance have evaluated the documentation supporting the compliance of the Central Characterization Project (CCP) TRU waste program deployed at the Los Alamos National Laboratory (LANL) (hereinafter referred to as LANL-CCP), Attachments 2 and 3 provide complete lists of certified processes, procedures, documents, and systems deployed at the LANL-CCP. Attachment 4 is the Tiering of TRU Waste Characterization Processes Implemented by the CCP at LANL.

### STATUS

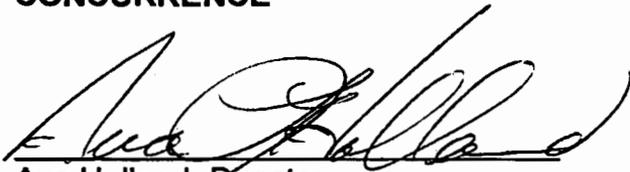
- All program elements remain complete.
- The following site documents are current and demonstrate how the CCP complies with the CBFO requirements.
  - **QAPjP – CCP-PO-001, Revision 18 - CCP Transuranic Waste Characterization Quality Assurance Project Plan** (Approved June 29, 2010 – CBFO:NTP:CF:GS:10-1422:UFC 5900.00).
  - **WCP - CCP-PO-002, Revision 24 - CCP Transuranic Waste Certification Plan** (Approved June 29, 2010 – CBFO:NTP:NC:GS:10-1428:UFC 5900.00).  
**QAP - Section 4.0 of CCP-PO-002.**
  - **TRAMPAC – CCP-PO-003, Revision 11, CCP Transuranic Authorized Method for Payload Control** (Approved June 3, 2009 - CBFO:NTP:CF:GS:09-0987:UFC 5900.00).
- Certified Systems - see Attachment 2 for the complete list of certified systems used by the CCP at the LANL.
- Standard operating procedures - see Attachment 3 for the complete list of certified procedures used by the CCP at the LANL.
- Tiering of the TRU Waste Characterization Processes – see Attachment 4 for the implementation by CCP at LANL (based on EPA Baseline Inspections)

- CCP participated in the following performance demonstration programs (PDPs) :
  - **HSG PDP (CCP-INL)** – For CH waste, SUMMA sampling is performed by CCP, analysis is performed by the Idaho National Laboratory, which is approved under a separate certification. For RH waste, NMED granted exemption by approving an AK Cycle B9A approved for radioassay in the TRU standard waste box using the NABC (SR05/SRN2).
  - **NDA PDP - Cycle 17A approval** for analysis of TRU waste drums by nondestructive assay using the High Efficiency Neutron Counter (HENC) HENC #1 (LA06/LAN5) and HENC #2 (LA07/LAN6) and procedures identified as CCP-TP-063, Revision 11.
- CBFO conducted the Recertification Audit A-10-14 of the LANL CCP on April 27-29, 2010.
  - CARs 10-025, 10-026, 10-027, 10-028, and 10-029 were issued on May 6, 2010.
  - CAR 10-025 was closed on July 2, 2010.
  - CAR 10-026 was closed on July 8, 2010.
  - CAR 10-027 was closed on July 16, 2010.
  - CAR 10-028 was closed on July 23, 2010.
  - CAR 10-029 was closed on June 28, 2010.
  - The Interim Audit Report was issued on May 28, 2009.
  - The Final Audit Report was issued on August 16, 2010.
- CBFO conducted a Quality Assurance Program Audit A-09-10 on February 24-26, 2009.
  - Audit Report was issued on March 4, 2009.
- CBFO conducted CH and RH Transportation Audit A-09-27 for all sites on September 29-October 1, 2009.
  - Audit Report was issued on October 14, 2009.
- EPA issued concurrence on the draft CBFO recertification memo on October 20, 2010.

**RECOMMENDATION**

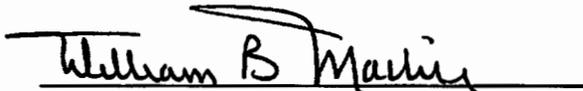
The recommendation to the CBFO Manager is to continue the CCP authority for characterization, certification, and transportation activities of contact-handled homogeneous solids (S3000) and debris waste (S5000) and to continue the authority for the processes associated with the Off-site Source Recovery Program at the LANL. Attachments 2, 3 and 4 list the systems and procedures that constitute the bounds of this authority.

**CONCURRENCE**



Ava Holland, Director  
CBFO Quality Assurance

10/18/10  
Date



William B. Mackie, Acting Director  
Office of the National TRU Program

10/20/10  
Date

CENTRAL CHARACTERIZATION PROJECT LIST OF CERTIFIED EQUIPMENT and PROCESSES AT LANL					
WIPP WWIS #	Site Equipment # or Title	Description	Components	Software	Calibration
<b>Non-destructive Assay</b>					
11HC1	HENC1 LA06/LAN5	Canberra Industries High Efficiency Neutron Counter mounted in a transportation container.  Procedures: CCP-TP-063	<input type="checkbox"/> Cadmium gamma ray filter and the Add-A-Source (AAS) <input type="checkbox"/> Canberra Neutron Multiplicity Counter <input type="checkbox"/> Canberra Digital Signal Processor <input type="checkbox"/> (1) Broad range HPGe detector <input type="checkbox"/> Analysis equipment	<input type="checkbox"/> Canberra NDA 2000 <input type="checkbox"/> Genie 2000 <input type="checkbox"/> Multi Group Analysis (MGA) Isotopics <input type="checkbox"/> Fixed-Energy Response function Alaysis with Multiple efficiencies (FRAM)	<i>Calibration Report for the HENC#1 Including Passive Neutron and Gamma Spectrometer Calibration and Confirmation, MCS-HENC#1-NDA-1002</i> describes the operating ranges and methods. The acceptable ranges are: Passive neutron; LLD to 16.28 g <sup>240</sup> Pu <sub>eff</sub> for multiplying waste streams, LLD to 35.0 g <sup>240</sup> Pu <sub>eff</sub> for non-multiplying waste streams, and Gamma: LLD to 217g of Weapons Grade Pu limited by dead time. Acceptable density range for gamma is 0.018 – 2.1 g/cc. The Total Measurement Uncertainty estimates are described in <i>Total Measurement Uncertainty for the MCS HENC#1 With Integral Gamma Spectrometer, CI-HENC-TMU-101</i> .
11HC2	HENC2 LA07/LAN6	Canberra Industries High Efficiency Neutron Counter mounted in a trailer.  Procedures: CCP-TP-063	<input type="checkbox"/> Tin/Copper gamma ray filter and the Add-A-Source (AAS) <input type="checkbox"/> Canberra Neutron Multiplicity Counter <input type="checkbox"/> Canberra Digital Signal Processor <input type="checkbox"/> (1) Broad range HPGe detector <input type="checkbox"/> Analysis equipment	<input type="checkbox"/> Canberra NDA 2000 <input type="checkbox"/> Genie 2000 <input type="checkbox"/> Multi Group Analysis (MGA) Isotopics <input type="checkbox"/> Fixed-Energy Response function Alaysis with Multiple efficiencies (FRAM)	<i>Calibration Report for the HENC#2 Including Passive Neutron and Gamma Spectrometer Calibration and Confirmation, HENC#2-NDA-1002</i> describes the operating ranges and methods. The acceptable ranges are: Passive neutron; LLD to 16.28 g <sup>240</sup> Pu <sub>eff</sub> for multiplying waste streams, LLD to 35.0 g <sup>240</sup> Pu <sub>eff</sub> for non-multiplying waste streams, and Gamma: LLD to 217g of Weapons Grade Pu limited by dead time. Acceptable density range for gamma is 0.018 – 2.1 g/cc. The Total Measurement Uncertainty estimates are described in <i>Total Measurement Uncertainty for the MCS HENC#2 With Integral Gamma Spectrometer, CI-HENC2-TMU-101</i> .

CENTRAL CHARACTERIZATION PROJECT LIST OF CERTIFIED EQUIPMENT and PROCESSES AT LANL					
WIPP WWIS #	Site Equipment # or Title	Description	Components	Software	Calibration
<b>Non-destructive Examination</b>					
11RR1	RTR1	Real-Time Radiography Mobile Characterization System RTR-[built by VJ Technologies] – 55-gallon drums  Procedure CCP-TP-053 and CCP-TP-028	<input type="checkbox"/> Control and Data Acquisition console/station <input type="checkbox"/> X-ray producing component with controls <input type="checkbox"/> Shielded X-ray enclosure <input type="checkbox"/> Waste container handling system with turntable dolly assembly <input type="checkbox"/> Conveyor cart, drum handling equipment (forklift with container grappler) X-ray imaging system <input type="checkbox"/> Video/Audio recording equipment	N/A	N/A
11RR2	RTR2	Real-Time Radiography Mobile Characterization System RTR [built by VJ Technologies] – 55-gallon drums  Procedure CCP-TP-053 and CCP-TP-028	<input type="checkbox"/> Control and Data Acquisition console/station <input type="checkbox"/> X-ray producing component with controls <input type="checkbox"/> Shielded X-ray enclosure. <input type="checkbox"/> waste container handling system with turntable dolly assembly <input type="checkbox"/> Conveyor cart, drum handling equipment (forklift with container grappler) X-ray imaging system <input type="checkbox"/> Video/Audio recording equipment	NA	N/A
<b>Visual Examination</b>					
11VE1	N/A	CH Visual Examination Procedure CCP-TP-113	N/A	N/A	N/A
11VE2	N/A	CH Visual Examination (OSRP) Procedure CCP-TP-069 Description: Characterization performed utilizing VE	N/A	N/A	N/A
<b>Headspace Gas</b>					
N/A	HSG	SUMMA Sampling process on selected waste containers from waste stream lots.	As identified in CCP-TP- 093	As identified in CCP- TP-093	N/A

<b>CENTRAL CHARACTERIZATION PROJECT LIST OF CERTIFIED EQUIPMENT and PROCESSES AT LANL</b>					
<b>WIPP WWIS #</b>	<b>Site Equipment # or Title</b>	<b>Description</b>	<b>Components</b>	<b>Software</b>	<b>Calibration</b>
<b>Flammable Gas Analysis</b>					
11HG2	HSG-FGA-02	Flammable Gas Analysis  As identified in DOE/WIPP-06-3345	Analytical System consisting of: <input type="checkbox"/> GC/MS	<input type="checkbox"/> Agilent Technology Enhanced Chemstation (G1701CA)  <input type="checkbox"/> Flammable Gas Analysis, MDL Spreadsheet	N/A
11HG3	HSG-FGA-03	Flammable Gas Analysis  As identified in DOE/WIPP-06-3345	Analytical System consisting of: <input type="checkbox"/> GC/MS	<input type="checkbox"/> Agilent Technology Enhanced Chemstation (G1701CA)  <input type="checkbox"/> Flammable Gas Analysis, MDL Spreadsheet	N/A

LANL CCP List of Deactivated Equipment				
WIPP #	Site Equipment #	Description	Components/Software	Date Deactivated
11PT1	PTGS/FRAM System 1 PTGS/FRAM System 3 LA05/LAG5	Portable Tomographic Gamma Scanner (PTGS) - The data from this system is used along with the relative isotopic data from the FRAM systems to generate quantitative isotopic information for each waste container.	<input type="checkbox"/> Components: Portable Tomographic Gamma Scanner; HPGe Detector; EG&G Ortec solid state photon detector; EG&G Ortec spectroscopy system; Drum turntable  <input type="checkbox"/> Software: Maestro spectroscopy software; PC/FRAM software; ANTECH MasterScan; ANTECH MasterAnalysis	January 8, 2007
11HG1	Agilent GC/MS	N/A	<input type="checkbox"/> Components: Two Entech 7032-L MiniCan autosamplers (Units A - DB-624 column; and B - GS-Mole Sieve Particle Lined Open Tubular (PLOT) column) with autoloop systems with independent pressurization ports  <input type="checkbox"/> Software: SmartLab; Agilent Technologies EnviroQuant ChemStation G1701BA (Version D.00.00.38, or higher); Nomad® Data Logger Software; DicksonWare®; LabSmart MiniCan Autosampler	2006

**CENTRAL CHARACTERIZATION PROJECT  
LIST OF CERTIFIED PROCEDURES AT LANL**

No.	Procedure Number	DOCUMENT TITLE
1.	CCP-PO-001	CCP Transuranic Waste Quality Assurance Project Plan
2.	CCP-PO-002	CCP Transuranic Waste Certification Plan
3.	CCP-PO-003	CCP Transuranic Authorized Methods for Payload Control (CCP CH TRAMPAC)
4.	CCP-PO-005	CCP Conduct of Operations
5.	CCP-PO-008	CCP Quality Assurance Interface with WTS QA Program
6.	CCP-PO-012	CCP/LANL Interface Document
7.	CCP-QP-001	CCP Graded Approach
8.	CCP-QP-002	CCP Training and Qualification Plan
9.	CCP-QP-004	CCP Corrective Action Management
10.	CCP-QP-005	CCP TRU Nonconforming Item Reporting and Control System
11.	CCP-QP-006	CCP Corrective Action Reporting and Control
12.	CCP-QP-008	CCP Records Management
13.	CCP-QP-010	CCP Document Preparation, Approval and Control
14.	CCP-QP-011	CCP Notebooks & Logbooks
15.	CCP-QP-014	CCP Data Analysis and Trending
16.	CCP-QP-015	CCP Procurement
17.	CCP-QP-016	CCP Control of Measuring, Testing, and Data Collection Equipment
18.	CCP-QP-017	CCP Identification and Control of Items
19.	CCP-QP-018	CCP Management Assessment
20.	CCP-QP-019	CCP Quality Assurance Reporting to Management
21.	CCP-QP-021	CCP Surveillance Program
22.	CCP-QP-022	CCP TRU Software Quality Assurance Plan
23.	CCP-QP-023	CCP Handling, Storage, and Shipping
24.	CCP-QP-026	CCP Inspection Control
25.	CCP-QP-027	CCP Test Control
26.	CCP-QP-028	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
27.	CCP-QP-030	CCP Written Practice for the Qualification of CCP Helium Leak Detection Personnel
28.	CCP-TP-001	CCP Project Level Data Validation and Verification
29.	CCP-TP-002	CCP Reconciliation of DQOs and Reporting Characterization Data
30.	CCP-TP-003	CCP Data Analysis for S3000, S4000, S5000 Characterization
31.	CCP-TP-005	CCP Acceptable Knowledge Documentation
32.	CCP-TP-008	CCP Solids Sampling Procedure
33.	CCP-TP-028	CCP Radiographic Test and Training Drum Requirements
34.	CCP-TP-030	CCP CH TRU Waste Certification and WWIS Data Entry
35.	CCP-TP-033	CCP Shipping of CH TRU Waste
36.	CCP-TP-053	CCP Standard Real-Time Radiography (RTR) Inspection Procedure
37.	CCP-TP-054	CCP Adjustable Center of Gravity Lift Fixture Preoperational Checks and Shutdown
38.	CCP-TP-055	CCP Varian Porta-Test Leak Detector Operations
39.	CCP-TP-056	CCP HSG Performance Demonstration Plan

<b>CENTRAL CHARACTERIZATION PROJECT LIST OF CERTIFIED PROCEDURES AT LANL</b>		
<b>No.</b>	<b>Procedure Number</b>	<b>DOCUMENT TITLE</b>
40.	CCP-TP-058	CCP NDA Performance Demonstration Plan
41.	CCP-TP-063	CCP Operating the High Efficiency Neutron Counter Using NDA 2000
42.	CCP-TP-064	CCP Calibrating the High Efficiency Neutron Counter Using NDA 2000
43.	CCP-TP-069	CCP Sealed Source Visual Examination and Packaging
44.	CCP-TP-082	CCP Preparing and Handling Waste Drums for Headspace Gas
45.	CCP-TP-083	CCP Gas Generation Testing
46.	CCP-TP-086	CCP CH Packaging Payload Assembly
47.	CCP-TP-093	CCP Sampling of TRU Waste Containers
48.	CCP-TP-098	CCP Installation of the NucFil HSG Sample Port
49.	CCP-TP-101	CCP Off-Site Source Recovery Project Sealed Source Radiological Characterization
50.	CCP-TP-103	CCP Data Reviewing, Validating and Reporting Procedure for the High Efficiency Neutron Counter Using NDA 2000
51.	CCP-TP-106	CCP Headspace Gas Sampling Batch Data Report Preparation
52.	CCP-TP-113	CCP Standard Waste Visual Examination
53.	CCP-TP-120	CCP Container Management
54.	CCP-TP-138	CCP Execution of Long-Term Objective for the Unified Flammable Gas Test Procedure
55.	CCP-TP-160	CCP Random Selection of Containers for Headspace Gas Sampling and Analysis
56.	CCP-TP-161	CCP Random Selection of Containers for Solids Sampling and Analysis
57.	CCP-TP-162	CCP Random Selection of Containers for Solids and Headspace Gas Sampling and Analysis
58.	CCP-TP-163	CCP Standard Visual Examination of Records
59.	CCP-TP-180	CCP Analytical Sample Management

<b>CENTRAL CHARACTERIZATION PROJECT LIST OF DEACTIVATED PROCEDURES AT LANL</b>			
<b>#</b>	<b>Deactivated Procedure #</b>	<b>Deactivated Procedure Title</b>	<b>Date Deactivated</b>
1.	CCP-QP-009	CCP Work Control Process	10/06
2.	CCP-QP-025	CCP Lessons Learned	6/10
3.	CCP-TP-089	MGSS Sampling Operations	10/09
4.	CCP-TP-092	CCP Mobile Gas Generation Testing Sampling System (MGSS) Data Calculation	10/09
5.	CCP-TP-094	GGTP Drum Screening and Batching	10/09
6.	CCP-TP-123	CCP Calibrating the Tomographic Gamma Scanning System	1/07
7.	CCP-TP-124	CCP Determining Isotopic Ratios in Waste Containers Using the RANT PC/FRAM Assay System	1/07
8.	CCP-TP-125	CCP Verification and Validation of NDA Data Using a Manual Review Method	1/07
9.	CCP-TP-126	CCP Waste Assay using the Portable Tomographic Gamma Scanner	1/07
10.	CCP-TP-127	CCP Canister Cleaning Using the ENTECH 3100 Canister Cleaning System	1/06
11.	CCP-TP-128	CCP TRU Waste Container HSG Analysis (Entech-Agilent)	1/06
12.	CCP-TP-129	CCP HSG Sampling and Analysis Batch Data Report Preparation (Entech-Agilent)	1/06
13.	CCP-TP-130	CCP Entech Canister Gauge Leak Test	1/06
14.	CCP-TP-131	CCP Manual Headspace Gas Sampling of TRU Waste Containers for the Entech/Agilent Analytical System	1/06
15.	CCP-TP-136	CCP Standardized Prohibited Item Remediation	9/06
16.	CCP-TP-043	CCP Chain of Custody for SUMMA® Canister Sampling Using the INL Lab	9/07

<b>CH Tiering of TRU WC Processes Implemented by CCP at LANL</b> <b>(Based on May 23-25, 2006 EPA Baseline Inspection, August 22, 2006 OSRP Inspection and</b> <b>March 6, 2007 Evaluation)</b> <b>(Inspection No. LANL-CCP-05.06-08, EPA Docket No. A-98-49, II-A4-88)</b>		
<b>CH WC Process Elements</b>	<b>LANL-CCP CH WC Tier 1 Changes</b>	<b>LANL-CCP CH WC Tier 2 Changes*</b>
Acceptable Knowledge (AK) and Load Management	Any new waste category, or new OSRP wastes addressed in AK Summaries separate from CCP-AK-008  Implementation of Load Management for waste streams other than AK-009	Notification to EPA upon completion of AK Accuracy reports  Notification to EPA upon completion of updates to or substantive modifications*** of the following: - AK Reassessment Memoranda and combination of waste streams that were distinct at the time of this inspection - AK-VE Memoranda related to VE and/or RTR techniques - AK-NDA Memoranda - AK Accuracy Reports - Site procedures requiring CBFO approval - AK Summary CCP-AK-008, if changed since the baseline inspection and/or following the addition of new sealed sources - Change Notices used to modify and update WSPFs, including additions to waste stream(s) within an approved waste category
Nondestructive Assay (NDA)	New equipment or physical modifications to approved equipment**  Extension or changes to approved calibration range for approved equipment	Notification to EPA upon completion of changes to software for approved equipment, operating range(s) and site procedures that require CBFO approval
Real-Time Radiography (RTR)	N/A	Notification to EPA upon the following: - Implementation of new equipment or substantive changes*** to approved equipment - Completion of changes to site procedures requiring CBFO approvals
Visual Examination (VE) and Visual Examination Technique (VET), including OSRP Wastes (Sealed Source VET or SSVET)	N/A	Notification to EPA upon the following: - Completion of changes to site VE and VET procedures requiring CBFO approvals, including OSRP VET procedure
WIPP Waste Information System (WWIS)	N/A	Notification to EPA upon the following: - Completion of changes to WWIS procedure(s) requiring CBFO approvals - Changes to the Excel spreadsheet, WWIS data entry summary, characterization and certification*** that require CBFO approval

\* Upon receiving EPA approval, LANL-CCP will report all Tier 2 changes to EPA at the end of each fiscal year quarter.

\*\* Modifications to approved equipment include all changes with the potential to affect NDA data relative to waste isolation and exclude minor changes, such as the addition of safety-related equipment.

\*\*\* Substantive changes means changes with the potential to impact the site's waste characterization activities or documentation thereof, excluding changes that are solely related to Environmental Safety & Health (ES&H), nuclear safety, the Resource Conservation and Recovery Act (RCRA) or are editorial in nature.

### AK Tiers

**Tier 1 AK changes** will require EPA review and approval prior to implementation and will apply to any new waste category not evaluated during the baseline inspection. These include the following:

- Any new waste category or new OSRP wastes addressed in AK Summaries separate from CCP-AK-008
- Implementation of Load Management for waste streams other than AK-009

**Tier 2 AK changes** do not require prior EPA approval but require LANL-CCP to notify EPA upon implementation of such changes and submit a brief description of the changes. Notification to EPA must be made upon completion of updates to or substantive modifications of the following:

- AK Reassessment Memoranda and combination of waste streams that were distinct at the time of this inspection
- AK-VE Memoranda related to VE and/or RTR techniques (see Section 8.4 for specific details regarding the content of this memo and relationship to AK)
- AK-NDA Memoranda
- Site procedures requiring CBFO approval
- AK Summary CCP-AK-008, if changed since the baseline inspection and/or following the addition of new sealed sources
- Completion of AK Accuracy Reports
- Change Notices used to modify and update WSPFs, including additions to waste stream(s) within an approved waste category

### NDA Tiers

**Tier 1 NDA changes** require EPA review and approval prior to implementation. They include the following:

- New NDA equipment<sup>1</sup>
- Physical modifications to approved equipment<sup>2</sup>
- Extension or changes of an approved calibration range(s) for approved equipment

The last bulleted item above refers to the extension of a system's approved calibration range with respect to determination of the disintegration rate (activity) or physical characteristics (matrix) of any of the two NDA systems approved as a result of this inspection. An EPA technical inspection involves the evaluation of several characteristics of a measurement system. A key characteristic is the range of conditions for which the instrument is capable of producing technically defensible data with respect to the following two aspects:

- Activity—the nuclear disintegration rate of specific radiation types (neutron or gamma), typically special nuclear material or TRU radionuclides; units of activity and mass are interchangeable
- Physical characteristics—the physical attributes of waste matrices as they relate to a radiometric system (i.e., how the matrix's physical properties interact with the radiations that originate within the sample and affect the system's ability to detect them); examples include attenuation of photons (gamma) and moderation and absorption of neutrons

---

<sup>1</sup>New NDA equipment refers to a system or component not previously evaluated by EPA. Specifically, this is defined as a physically distinct or different system or apparatus; an assay system that is reported to be the equivalent of or identical to a previously approved system, but which has not been formally inspected and approved by EPA, is a new system and must be approved by EPA prior to implementation to characterize WIPP wastes.

<sup>2</sup>Changes to existing NDA equipment include all changes and/or modifications to approved equipment that have the potential to affect the quality of NDA data used for the purposes of WC and/or waste isolation. This does not include minor changes or safety-related changes (e.g., addition of handrails) that do not have the potential to affect WC data.

During the inspection, the system's technical capabilities being evaluated represent the conditions observed, and they define the operational envelope in which WIPP measurements will occur. Changes to a system's calibrated range with respect to disintegration rate and/or matrix may represent an essentially different set of conditions from those evaluated during the inspection. For this reason, a change to a system's calibrated range is considered a T1 change. A system's operating range is generally, but not always, a subset of a calibration range; that is, systems that are calibrated to make valid measurements from 0 to 200 g of WG Pu or total plutonium typically operate in a smaller range, the system's LLD to 177 g for WIPP. Provided the system's calibrated range is valid, a site can designate a different operating range(s) within the calibrated range as a T2 change (i.e., a subset of the calibrated range).

Similarly, for physical characteristics NDA systems are often calibrated with respect to a range of sample attributes—for example, a matrix density range upper limit of 2.1 g/cm<sup>3</sup> for the LANL HENC systems discussed earlier in this report. This range may include materials that are commonly referred to using terms such as "debris (S5000)" and "solids (S3000)," both of which are within the calibrated density range. Actual waste assays may be restricted to a portion or subset of this range (i.e., debris only, for a variety of technical and/or administrative reasons). Changing the calibrated range by extending it beyond 2.1 g/cm<sup>3</sup> for either of the LANL HENC systems would constitute a T1 change. Provided the original density range is valid, changing the operational range(s) of an approved NDA system—that is, decreasing it relative to the originally approved density range—is a T2 change, as discussed below.

**Tier 2 NDA changes** do not require prior EPA approval but do require LANL-CCP to notify EPA upon implementation of such changes and submit a brief description of the changes. These include the following:

- Changes to software for approved equipment
- Changes to the approved operating range(s) of approved NDA systems upon CBFO approval (see discussion above)
- Changes to procedures that require CBFO approval

Examples of the first bulleted item above would include the following:

- Changing a system's operating system (e.g., first use of Canberra NDA 2000)
- Identification of a systematic problem with a software package and subsequent modifications to address the problem, (e.g., use of an incorrect value for a radionuclide's transition probability (branching ratio) in NDA 2000)
- Introduction of a new version of an existing software package beyond what is in current use

Regarding the second bulleted item above, reducing a system's operating range because of performance-related problems or equipment failure would be a T2 change. For example, if the HENC failed to pass a PDP cycle for a specific matrix or activity range and its use for those were formally restricted by the site or CBFO, this would be a T2 change.

### **RTR Tiers**

**Tier 1 RTR changes:** None.

**Tier 2 RTR changes** do not require prior EPA approval but do require LANL-CCP to notify EPA upon implementation of such changes and submit a brief description of the changes. These include the following:

- New RTR equipment or modifications to approved equipment
- Changes made to RTR procedure(s) that require CBFO approval

**VE Tiers**

**Tier 1 VE changes:** None.

**Tier 2 VE changes** do not require prior EPA approval but do require LANL-CCP to notify EPA upon implementation of such changes and submit a brief description of the changes. These include the following:

- Changes made to site VE procedure(s) that require CBFO approval

Item below is listed as a T2 item under the AK section but is based on a VE concern:

- AK-VE Memoranda related to VE and/or RTR techniques

**Sealed Source VET Tiers**

**Tier 1 VET changes:** None.

**Tier 2 VET changes** do not require prior EPA approval but do require LANL-CCP to notify EPA upon implementation of such changes and submit a brief description of the changes. These include the following:

- Changes made to the VET procedure for OSRP wastes that require CBFO approval

**WWIS Tiers**

**Tier 1 WWIS changes:** None.

**Tier 2 WWIS changes** do not require prior EPA approval but do require LANL-CCP to notify EPA upon implementation of such changes and submit a brief description of the changes. These changes were added to provide a greater specificity in an attempt to identify and focus on the key elements relevant to waste isolation and include the following:

- Changes to WWIS procedure(s) that require CBFO approval
- Changes to the Excel spreadsheet, WWIS data entry summary—characterization and certification