



Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
July 08, 2021

Mr. Ricardo Maestas, Acting Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Subject: Transmittal of the Hazardous Waste Facility Permit Attachment C6 Audit Plan and Notification of Assigned Auditors for CBFO Recertification Audit A-21-25 of the Lawrence Livermore National Laboratory Central Characterization Program

Dear Mr. Maestas:

This letter transmits the audit plan for Carlsbad Field Office (CBFO) Recertification Audit A-21-25, Lawrence Livermore National Laboratory (LLNL) Central Characterization Program for performing characterization activities for contact-handled transuranic waste. Pending travel approval, the audit will be conducted as required by the Waste Isolation Pilot Plant Hazardous Waste Facility Permit on August 10–12, 2021, at the LLNL in Livermore, California, with portions of the audit conducted remotely via teleconference. The audit plan identifies the audit team members, as required by the Permit.

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.

Should you have any questions concerning this notification, please contact Mr. Joe Lopez, Software Quality Assurance Specialist, CBFO Office of Quality Assurance, at (575) 499-5054.

Sincerely,

**Reinhard
M. Knerr** Digitally signed by
Reinhard M. Knerr
Date: 2021.07.08
07:47:22 -06'00'

Reinhard Knerr
Manager
Carlsbad Field Office

Enclosure

cc: w/enclosure

J. Lorence, EM-3.113	* ED
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K. Princen, CBFO	ED
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D. Biswell, NMED	ED
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P. Martinez, CTAC	ED
S. Gomez, CTAC	ED
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Site Documents	ED
CBFO M&RC	ED
CBFO QA File	

*ED denotes electronic distribution

**CARLSBAD FIELD OFFICE
AUDIT PLAN**

Audit Number: A-21-25

Organization to be Audited: Lawrence Livermore National Laboratory (LLNL), Nuclear Waste Partnership LLC (NWP) Central Characterization Program (CCP)

Organizations to be Notified: LLNL
NWP
New Mexico Environment Department (NMED)
U.S. Environmental Protection Agency (EPA)

Date and Location: August 10 – 12, 2021
Livermore, CA and via remote capabilities

Audit Team:

Joe Lopez*	Carlsbad Field Office (CBFO) Office of Quality Assurance (OQA) Management Representative and Auditor (Program Status, QA Program)
Cindi Castillo*	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Tim Boswell	Auditor, CTAC (Interface & GSTR)
Bob Prentiss	Auditor, CTAC (C6 QA)
Paul Gilbert	Auditor, CTAC (C6 QA)
Rick Castillo*	Auditor, CTAC (VE/Container Mgmt.)
Steve Shafer *	Auditor, CTAC (NDA)
Shelly Gomez*	Auditor, CTAC (FGA & GGT)
Maria Escarcega	Auditor-in-Training, Technical Specialist-in-Training (AK)
Randy Fitzgerald	Auditor & Technical Specialist, CTAC (AK)
Dick Blauvelt	Technical Specialist, CTAC (AK)
Dustin Stegman*	Technical Specialist, CTAC (VE/Container Mgmt.)
Paul Gomez*	Technical Specialist, CTAC (PL V&V, FGA & GGT)
Jim Oliver*	Technical Specialist, CTAC (NDA)

* Pending travel authorization, these team members will travel to perform the audit. These technical and quality assurance objective evaluations are required to be performed (on-site) by the Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Waste Analysis Plan, Attachment C6, *Audit and Surveillance Program*.

Audit Scope:

The audit team will evaluate the adequacy, implementation, and effectiveness of the technical and quality assurance (QA) activities performed by NWP CCP at the LLNL for characterization of contact-handled (CH) transuranic (TRU) Summary Category Groups (SCGs) S3000 solids and S5000 debris wastes.

The waste streams to be evaluated are LL-M001-S5400-002 (heterogeneous debris); LL-W019-S3900-002 (solidified liquids and sludge); and LL-T004-S3141-002 (salt waste).

Pending travel authorization, some audit activities will be conducted at the LLNL site in Livermore, CA, with team members also working remotely via teleconference, as described in the daily schedule.

Per the CBFO National TRU Program (NTP) scope letter, Gas Generation Testing (GGT) has been included as part of the audit scope. GGT was deemed indeterminate in the previous CBFO Audit A-20-18; therefore, this audit will need to include an evaluation of the process and data in order to lift this restriction.

Real-time Radiography (RTR) was excluded from the audit scope because there are no field activities to observe since RTR Unit #2 has been demobilized. No RTR Batch Data Reports have been generated since the previous audit. Waste transportation activities was not included in the scope of this audit. A list of the equipment and processes to be evaluated is attached to this plan (Attachment 1).

Governing Documents/Requirements:

Evaluation of the overall program adequacy, implementation, and effectiveness of LLNL/CCP documents will be based on the current revisions of the following documents:

- *CBFO Quality Assurance Program Document*, DOE/CBFO-94-1012
- Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF
- *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, DOE/WIPP-02-3122
- *Waste Isolation Pilot Plant Documented Safety Analysis*, DOE/WIPP-07-3372 (Chapter 18)

Programmatic and technical checklists will be developed from the current revisions of the following documents:

- *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, CCP-PO-001
- *CCP Transuranic Waste Certification Plan*, CCP-PO-002
- *CCP/LLNL Interface Document*, CCP-PO-048
- Related NWP CCP QA and technical implementing procedures

Activities to be Audited:

General

- Results of Previous Audits

- Changes in Programs or Operations
- New Programs or Activities Being Implemented
- Changes in Key Personnel

C6-1 through C6-4 and general QA program elements, as applicable

- Quality Improvement/Nonconformances
- Personnel Qualification and Training
- Measuring and Test Equipment (M&TE)
- Software Version Installation
- Records

Technical Activities

- Project-Level Data Validation and Verification (PL V&V)
- Acceptable Knowledge (AK)
- Visual Examination (VE)
- Nondestructive Assay (NDA), including Performance Demonstration Program
- Flammable Gas Analysis (FGA)
- Gas Generation Testing (GGT)
- Container Management
- WIPP Waste Information System/Waste Data System (WWIS/WDS)

Schedule of Audit Activities:

Please note all times listed are Pacific Daylight Time (PDT).

A pre-audit conference is scheduled for Tuesday, August 10, 2021, at 8:30 a.m. PDT. If needed, the audit team leader will conduct a management briefing with appropriate LLNL and NWP CCP management at 8:30 a.m. PDT on Wednesday and Thursday, August 11 and 12, 2021.

A post-audit conference is scheduled for Thursday, August 12, 2021, at 3:00 p.m. PDT. All meetings will take place according to the daily schedule.

Prepared by: CINDI CASTILLO Digitally signed by CINDI CASTILLO (Affiliate)
Date: 2021.07.07 19:19:34 -06'00' **Date:** _____
Cindi Castillo
CTAC Audit Team Leader

Concurrence: DARREN JOLLEY Digitally signed by DARREN JOLLEY
Date: 2021.07.08 06:44:59 -06'00' **Date:** _____
Darren Jolley, Director
CBFO Office of Quality Assurance

CENTRAL CHARACTERIZATION PROGRAM at Lawrence Livermore National Laboratory List of Processes/Equipment to be Certified Applicable to S3000 Homogeneous Solids and S5000 Debris Wastes					
WDS Method ID#	Site Equipment # or Title	Description	Components	Software	NDA Calibrated and TMU
Non-Destructive Assay					
13MILCC4	MILCC4	Mobile ISOCS Large Container Counter (MILCC) Calibrated for 55-gallon drums, 12" Pipe Overpack Containers, and Standard Waste Boxes Operation, calibration, and data validation procedures are CCP-TP-076, CCP-TP-077, CCP-TP-048, and CCP-TP-058, respectively Procedures and calibration documents describe system in more detail.	<ul style="list-style-type: none"> • Detector rail and collimator sets (2) • Detector carts (2) • Cryostats (2) • High Purity Germanium (HPGe) Detectors (2) • Cadmium filter • Digital Signal Processors 	NDA 2000 Genie 2000	Calibration Document: CI-MILCC4-NDA-1001, Calibration Confirmation Report For the Mobile ISOCS Large Container Counter (MILCC4) at Lawrence Livermore National Laboratory, Rev. 2 TMU Document: CI-MILCC4-TMU-101, Lawrence Livermore National Laboratory Mobile ISOCS Large Container Counter 4 (MILCC4) Total Measurement Uncertainty Report, Rev. 1
13SG1	SGS	Segmented Gamma Scanner (SGS) Calibrated for 55-gallon drums Operation, calibration, and data validation procedures are CCP-TP-202, CCP-TP-203, CCP-TP-048, and CCP-TP-058, respectively Procedures and calibration documents describe system in more detail.	<ul style="list-style-type: none"> • High Purity Germanium (HPGe) detector • Cryostat • Pulser • Drum rotator • Detector and transmission lifts • Digital Signal Processors 	NDA 2000 Genie 2000	Calibration Document: CI-LLNL-NDA-001, Calibration, Verification, and Confirmation Report for the Lawrence Livermore National Laboratory (LLNL) Room 1013 Segmented Gamma Scanner, Rev. 3 TMU Document: CI-LLNL-NDA-002, Total Measurement Uncertainty Report for the Lawrence Livermore National Laboratory Segmented Gamma Scanner, Rev. 0

CENTRAL CHARACTERIZATION PROGRAM at Lawrence Livermore National Laboratory					
List of Processes/Equipment to be Certified					
Applicable to S3000 Homogeneous Solids and S5000 Debris Wastes					
WDS Method ID#	Site Equipment # or Title	Description	Components	Software	NDA Calibrated and TMU
Visual Examination					
13VE1	N/A	CH Visual Examination As identified in CCP-TP-113	N/A	<ul style="list-style-type: none"> CCP Visual Examination Loading Form Excel Spreadsheet CCP Waste Visual Examination Data Form Excel Spreadsheet 	N/A
Flammable Gas Analysis					
13HG7	FGA7	Flammable Gas Analysis (FGA) As identified in DOE/WIPP-06-3345	Gas Chromatograph (GC) with two detectors: mass spectrometer (MS) and a thermal conductivity detector (TCD)	<ul style="list-style-type: none"> Excel Spreadsheet(s): FGA Attachment, ICAL Spreadsheet, and FGA MDL Spreadsheet MSD Productivity Chemstation 	N/A
Gas Generation Testing					
13GG1	GGT	Gas Generation Testing (GGT) As identified in CCP-TP-083	<ul style="list-style-type: none"> Gas Chromatograph Mass Spectrometer (GCMS) using TCD Computer/Data System GGT Canister 	<ul style="list-style-type: none"> GGTP Data Calculation GCMS Excel Spreadsheet(s) MSD Productivity Chemstation 	N/A
WIPP Waste Information System/Waste Data System (WWIS/WDS)					
N/A	N/A	As identified in CCP-TP-030	N/A	N/A	N/A

CENTRAL CHARACTERIZATION PROGRAM at Lawrence Livermore National Laboratory					
List of Processes/Equipment to be Certified					
Applicable to S3000 Homogeneous Solids and S5000 Debris Wastes					
WDS Method ID#	Site Equipment # or Title	Description	Components	Software	NDA Calibrated and TMU
Project Level Data Validation & Verification					
N/A	N/A	As identified in CCP-TP-001, CCP-TP-002, and CCP-TP-048	N/A	N/A	N/A
Acceptable Knowledge					
N/A	N/A	As identified in CCP-TP-005 and CCP-TP-200 <ul style="list-style-type: none"> ❖ Enhanced AK ❖ Enhanced Chemical Compatibility Evaluation Basis of Knowledge ❖ Evaluating Oxidizing Chemicals in TRU Waste 	N/A	N/A	N/A
QA Program					
N/A	N/A	As identified in the CBFO QAPD and NWP QAPD	N/A	N/A	N/A