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, NM 87505-6303

Subject: Transmittal of Audit Plan and Notification of Assigned Auditors for CBFO Audit A-16-01 of the Advanced Mixed Waste Treatment Project

Dear Mr. Kieling:

This letter transmits the audit plan for Carlsbad Field Office (CBFO) Recertification Audit A-16-01 of the Advanced Mixed Waste Treatment Project at the Idaho National Laboratory (INL) for transuranic waste characterization activities. The audit will be conducted as required by the Waste Isolation Pilot Plant Hazardous Waste Facility Permit, and will be held at the Energy Drive Facility in Idaho Falls, Idaho and at the INL Site, on October 27-29, 2015. 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 fines and imprisonment for knowing violations.

If you have any questions regarding this notification, please contact Mr. Michael R. Brown, Director, CBFO Office of Quality Assurance, at (575) 234-7476.

Sincerely,

For Dana C. Bryson

Dana C. Bryson, Acting Manager
Carlsbad Field Office

Enclosures

cc: w/enclosures

S. Ross, EM-43	*ED	C. Smith, NMED	ED
M. Brown, CBFO	ED	V. Daub, CTAC	ED
J.R. Stroble, CBFO	ED	R. Allen, CTAC	ED
G. Basabilvazo, CBFO	ED	P. Martinez, CTAC	ED
M. Navarrete, CBFO	ED	B. Pace, CTAC	ED
D. Miehls, CBFO	ED	C. Castillo, CTAC	ED
N. Castaneda, CBFO	ED	D. Harvill, CTAC	ED
G. Birge, CBFO	ED	G. White, CTAC	ED
T. Carver, CBFO	ED	A. Urquidez, RES	ED
H. Cruickshank, CBFO	ED	CBFO QA File	
R. Maestas, NMED	ED	CBFO M&RC	
S. Holmes, NMED	ED		

*ED denotes electronic distribution

CBFO:OQA:MRB:SG:15-0883:UFC 2300.00

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CARLSBAD FIELD OFFICE AUDIT PLAN

Audit Number: A-16-01

Organization: Advanced Mixed Waste Treatment Project (AMWTP)

Organizations to be Notified: Idaho Treatment Group
New Mexico Environment Department (NMED)
U.S. Environmental Protection Agency (EPA)

Date and Location: October 27–29, 2015
Idaho National Laboratory (INL), Idaho Falls, Idaho, and the AMWTP Energy Drive Facility, Idaho Falls, Idaho

Audit Team:

Martin Navarrete	Management Representative, Carlsbad Field Office (CBFO) Office of Quality Assurance (QA)
Dennis Miehls	CBFO QA Representative
Cindi Castillo	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Tammy Ackman	Auditor, CTAC (VE)
Randall Allen	Auditor, CTAC (Management & Independent Assessments)
Bob Boyko	Auditor, CTAC (NDA)
Harley Kirschenmann	Auditor, CTAC (Organization/QA Program/Graded Approach)
Greg Knox	Auditor, CTAC (C6 QA, Quality Improvement)
Berry Pace	Auditor, CTAC (RTR)
Bob Prentiss	Auditor, CTAC (Procurement and Inspection & Testing)
Charlie Riggs	Auditor, CTAC (C6 QA, Training)
Jim Schuetz	Auditor, CTAC (C6 QA, WWIS/WDS, Software Control & Work Processes)
Judith Stewart	Auditor, CTAC (AK, Waste Certification, Load Management)
Roger Vawter	Auditor, CTAC (Records and Document Control)
Rhett Bradford	Technical Specialist, CTAC (VE)
Dick Blauvelt	Technical Specialist, CTAC (AK, Waste Certification, Load Management)
Paul Gomez	Technical Specialist, CTAC (PL V&V)
Michel Hall	Technical Specialist, CTAC (NDA)
Porf Martinez	Technical Specialist, CTAC (RTR)
Jim Oliver	Technical Specialist, CTAC (NDA)
B. J. Verret	Technical Specialist, CTAC (Container Management, Shipping Documentation, Retrieval Inspection)

Audit Scope:

The audit team will evaluate the continued adequacy, implementation, and effectiveness of AMWTP technical and quality assurance (QA) activities related to characterizing contact-handled (CH) transuranic waste. The QA and technical activities implemented at

AMWTP for Summary Category Group (SCG) S3000 homogeneous solids waste and SCG S5000 debris waste will be audited to requirements in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), the *CBFO Quality Assurance Program Document*, and the *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*.

In addition, the Nondestructive Assay (NDA) Retrieval Box Assay System (RBAS) will be evaluated for initial certification for characterization of SCG S3000 and SCG S5000 wastes. The audit team will evaluate the system and batch data reports generated, as well as assess the process to allow the assembly of CH waste payloads to include some compacted containers (pucks) that cannot be directly measured under AMWTP's currently approved program.

Activities to be Audited:

The following general areas from Attachment C6, Section C6-3, of the WIPP HWFP will be audited:

Results of Previous Audits
Changes in Programs or Operations
New Programs or Activities Being Implemented
Changes in Key Personnel

QA Activities/Processes:

Organization/QA Program Implementation & Graded Approach
Personnel Qualification and Training
Quality Improvement (nonconformance reporting and corrective action)
Document Control
Records
Work Processes
Procurement
Inspection and Testing (control of measurement and test equipment for data collection)
Assessments
Container Management
Software Control

Technical Elements:

Acceptable Knowledge (AK), including waste certification (i.e., Waste Stream Profile Forms)
Project-Level Data Validation and Verification (PL V&V)
Real-time Radiography (RTR)
Visual Examination (VE)
Nondestructive Assay (NDA), including the initial certification of RBAS
WIPP Waste Information System/Waste Data System (WWIS/WDS)
Load Management

For additional details, see the attached Processes and Equipment to be Reviewed During Audit A-16-01 of AMWTP.

Governing Documents/Requirements:

Evaluation of adequacy of AMWTP 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

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

- *AMWTP Certification Plan for INL Transuranic Waste,* MP-TRUW-8.1
- *AMWTP Quality Assurance Project Plan*, MP-TRUW-8.2
- Related AMWTP QA and technical implementing procedures

Schedule of Audit Activities:

A pre-audit conference is scheduled for 8:30 a.m., Tuesday, October 27, 2015, at the Engineering Research Office Building (EROB) Facility, Conference Room 159, in Idaho Falls, Idaho. The EROB is located adjacent to the AMWTP Energy Drive Facility (EDF) where the audit will be conducted.

Audit team caucuses will be held at 3:30 p.m., Tuesday and Wednesday, October 27 and 28, 2015, and at 1:00 p.m. on Thursday, October 29, 2015, at the EDF, Room 116. In order to maintain independence of audit activities, all caucus meetings are limited to only the audit team, CBFO QA management, and Observers from DOE-HQ, NMED, and EPA.

The audit team leader will meet with DOE-ID and AMWTP management (if needed) to discuss audit concerns and audit progress at 8:30 a.m., Wednesday and Thursday, October 28 and 29, 2015, at the EDF, Room 116.

A post-audit conference is scheduled for 3:00 p.m., Thursday, October 29, 2015, at the EDF, Room 116.

Any changes to meeting locations will be identified on the daily audit schedule.

Approved By: Cindi Castillo **Date:** 9/8/15
Cindi Castillo, CTAC
Audit Team Leader

Approved By: _____ **Date:** 9/9/2015
Michael R. Brown, CBFO
Director, Office of Quality Assurance

Processes and Equipment to be Reviewed During Audit A-16-01 of AMWTP

WIPP #	Site Equipment #	Process/Equipment Description	Components	Software	NDA Calibrated Range, Operating Range and TMU
AMWTP New Processes or Equipment					
9RBAS1	Z-212-105	Retrieval Box Assay System (RBAS) BAS-105- PDP Registration #AM05/AMN5 Method described in INST-OI-15	• Broad Energy Germanium (BEGe) gamma detectors • 84 six foot helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential die-away modality • Eu-152 Source Gamma check source • 14 MeV neutron generator • 4 Flux monitor assemblies	• PSC RBAS.exe • PSC RWARS software package	The calibration of the RBAS was verified and documented in PSC-5431-CCR-001, Calibration Confirmation Report. The determination of total measurement uncertainty (TMU) for the RBAS unit is documented BII-5112-TMU-001, AMWTP Retrieval Box Assay System Total Measurement Uncertainty Report.
AMWTP Previously Certified Processes or Equipment					
NONDESTRUCTIVE ASSAY					
9DA1	Z-211-102	Canberra Integrated Waste Assay System (IWAS) for assay and isotopics on 55-gallon and 83/85-gallon drums DAS –102 - PDP Registration # AM01/AMN1 Method described in procedure INST-OI-14	• Broad Energy Germanium (BEGe) gamma detectors • 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential die-away modality • Cf-252/Cs-137 Add-A-Source (AAS) correction source • 14 MeV neutron generator • Fast Neutron Detector Packs (FNDP)	• NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U)	The calibration of IWAS system was verified and documented in the site acceptance reports CI-IDA-NDA-0051 through CI-IDA-NDA-0054. The calibration of the IWAS was verified and documented in CI-IDA-NDA-0035, Calibration Verification and Confirmation Procedure for the IWAS at AMWTP.

WIPP #	Site Equipment #	Process/Equipment Description	Components	Software	NDA Calibrated Range, Operating Range and TMU
					The determination of TMU for the IWAS unit is documented in CI-IDA-NDA-0055, Total Measurement Uncertainty for the AMWTP Integrated Waste Assay Systems, Revision 1, July 30, 2003.
9DA2	Z-211-103	Canberra Integrated Waste Assay System (IWAS) for assay and isotopics on 55-gallon and 83/85-gallon drums DAS-103 - PDP Registration # AM02/AMN2 Method described in procedure INST-OI-14	• Broad Energy Germanium (BEGe) gamma detectors • 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential die-away modality • Cf-252/Cs-137 Add-A-Source (AAS) correction source • 14 MeV neutron generator • Fast Neutron Detector Packs (FNDP)	• NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U)	The calibration of IWAS system was verified and documented in the site acceptance reports CI-IDA-NDA-0051 through CI-IDA-NDA-0054. The calibration of the IWAS was verified and documented in CI-IDA-NDA-0035, Calibration Verification and Confirmation Procedure for the IWAS at AMWTP. The determination of TMU for the IWAS unit is documented in CI-IDA-NDA-0055, Total Measurement Uncertainty for the AMWTP Integrated Waste Assay Systems, Revision 1, July 30, 2003.
9DA3	Z-390-100	Canberra Integrated Waste Assay System (IWAS) - DAS3 – 55-gallon drums DAS-100 – PDP Registration # AM03/AMN3 Method described in INST-FOI-01	• Broad Energy Germanium (BEGe) gamma detectors • 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential die-away modality • Cf-252/Cs-137 Add-A-Source (AAS) correction source • 14 MeV neutron generator • Fast Neutron Detector Packs (FNDP)	• NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U)	The calibration of IWAS system was verified and documented in the site acceptance reports CI-IDA-NDA-0051 through CI-IDA-NDA-0054. The calibration of the IWAS was verified and documented in CI-IDA-NDA-0035, Calibration Verification and Confirmation Procedure for the IWAS at AMWTP.

WIPP #	Site Equipment #	Process/Equipment Description	Components	Software	NDA Calibrated Range, Operating Range and TMU
					The determination of TMU for the IWAS unit is documented in CI-IDA-NDA-0055, Total Measurement Uncertainty for the AMWTP Integrated Waste Assay Systems, Revision 1, July 30, 2003.
9DA4	Z-390-101	Canberra Integrated Waste Assay System (IWAS) - DAS4 – 55-gallon drums DAS-101 – PDP Registration # AM04/AMN4 Method described in INST-FOI-01	• Broad Energy Germanium (BEGe) gamma detectors • 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential die-away modality • Cf-252/Cs-137 Add-A-Source (AAS) correction source • 14 MeV neutron generator • Fast Neutron Detector Packs (FNDP)	• NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U)	The calibration of IWAS system was verified and documented in the site acceptance reports CI-IDA-NDA-0051 through CI-IDA-NDA-0054. The calibration of the IWAS was verified and documented in CI-IDA-NDA-0035, Calibration Verification and Confirmation Procedure for the IWAS at AMWTP. The determination of TMU for the IWAS unit is documented in CI-IDA-NDA-0055, Total Measurement Uncertainty for the AMWTP Integrated Waste Assay Systems, Revision 1, July 30, 2003.
NON-DESTRUCTIVE EXAMINATION					
9RR1	Z-213-101	Real-Time Radiography System Method described in procedure INST-OI-12	RTR System	Waste Tracking System (WTS)	N/A
9RR2	Z-213-106	Real-Time Radiography System Method described in procedure INST-OI-12	RTR System	Waste Tracking System (WTS)	N/A
9RR3	RTR-RTR-1001	Real-Time Radiography System Method described in procedure INST-OI-12	RTR System	Waste Tracking System (WTS)	N/A

WIPP #	Site Equipment #	Process/Equipment Description	Components	Software	NDA Calibrated Range, Operating Range and TMU
VISUAL EXAMINATION					
9VE2	N/A	Visual Examination (in lieu of RTR) (VEC) Method described in INST-OI-34	N/A	Waste Tracking System (WTS)	N/A
9VE3	N/A	Newly Generated Waste Visual Examination Closure (VNC) Method described in INST-OI-34	N/A	Waste Tracking System (WTS)	N/A
9VE5	N/A	Visual Examination (in lieu of RTR) (VEC) Method described in INST-FOI-17	N/A	Waste Tracking System (WTS)	N/A
9VE6	N/A	Newly Generated Waste Visual Examination Closure (VNC) Method described in INST-FOI-17	N/A	Waste Tracking System (WTS)	N/A
9VE7	N/A	Box Line Visual Examination (VEB) – Box to drum repackaging Method described in INST-FOI-17	N/A	Waste Tracking System (WTS)	N/A
9VE8	N/A	Box Line Visual Examination (VEB) – Drum to new drum repackaging Method described in INST-FOI-17	N/A	Waste Tracking System (WTS)	N/A
9VE10	N/A	Box Line Visual Examination (VEB) – Drum to new drum repackaging Method described in INST-OI-34	N/A	Waste Tracking System (WTS)	N/A

AMWTP DEACTIVATED EQUIPMENT AND PROCESS LIST			
WIPP #	**Site Equipment #**	**Equipment Description**	**Date Deactivated**
HEADSPACE GAS			
9HG1	Z-220-001A	Nuclear Filter Technology Drum Vent System – Mass Spectrometer, Unit A	8/6/06
9HG2	Z-220-001B	Nuclear Filter Technology Drum Vent System – Mass Spectrometer, Unit B	8/6/06
9HG3	Z-220-001C	Nuclear Filter Technology Drum Vent System – Mass Spectrometer, Unit C	8/6/06
9HG7	Z-221-001D	Consonant Technology Inc. (CTI) –Gas Chromatography/Mass Spectrometry (GC/MS) System	Used for spare parts
9HG6	Z-221-001C	Consonant Technology Inc. (CTI) –Gas Chromatography/Mass Spectrometry (GC/MS) System	4/08
9HG5	Z-221-001B	Consonant Technology Inc. (CTI) –Gas Chromatography/Mass Spectrometry (GC/MS) System	4/08
9HG4	Z-221-001-A	Consonant Technology Inc. (CTI) –Gas Chromatography/Mass Spectrometry (GC/MS) System	3/13
Solids Sampling			
9DC1	Z-250-802	Drum Coring and Sample Collection Glove Box	3/13
VISUAL EXAMINATION			
9VE9	N/A	Box Line Visual Examination (VEB) – Box to Drum Repackaging	Expired in WDS February 23, 2011
9VE11	N/A	Sludge Visual Examination Closure (VSC) – S3000 to a new container Method described in INST-FOI-22	2/12