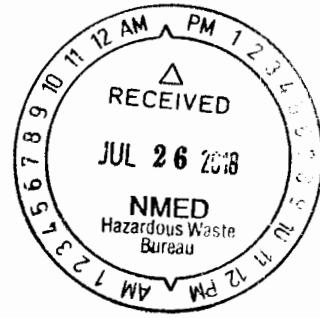




Department of Energy
 Carlsbad Field Office
 P. O. Box 3090
 Carlsbad, New Mexico 88221



ENTERED



JUL 19 2018

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: Transmittal of Audit Plan and Notification of Assigned Auditors for CBFO Audit A-18-04 of the Advanced Mixed Waste Treatment Project

Dear Mr. Kieling:

This letter transmits the audit plan for Carlsbad Field Office (CBFO) Recertification Audit A-18-04 of the Advanced Mixed Waste Treatment Project (AMWTP) at the Idaho National Laboratory (INL) for Transuranic Waste Characterization Activities for Contact-Handled Waste. The audit will be conducted as required by the Waste Isolation Pilot Plant Hazardous Waste Facility Permit, and will be held at the Sawtelle Facility in Idaho Falls, Idaho, and at the AMWTP INL site near Idaho Falls, August 27 – 30, 2018. 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.

Please contact CBFO Office of Quality Assurance, Senior Quality Assurance Specialist, Mr. Martin Navarrete, at (575) 234-7483, should you have any questions concerning this notification.

Sincerely,

Todd Shrader, Manager
 Carlsbad Field Office

Enclosure

cc: w/enclosure

| | | | |
|----------------------|------|-------------------|----|
| J. Carswell, CBFO | * ED | D. Biswell, NMED | ED |
| C. Gadbury, CBFO | ED | H. Tellez, NMED | ED |
| K. Princen, CBFO | ED | M. McLean, NMED | ED |
| C. Fesmire, CBFO | ED | T. Runyon, CTAC | ED |
| M. Navarrete, CBFO | ED | P. Martinez, CTAC | ED |
| D. Miehl, CBFO | ED | M. Leroch, CTAC | ED |
| M. Stapleton, CBFO | ED | C. Castillo, CTAC | ED |
| M. Brown, CBFO | ED | D. Harvill, CTAC | ED |
| H. Cruickshank, CBFO | ED | G. White, CTAC | ED |
| R. Murray, EM-43 | ED | J. Vernon, CTAC | ED |
| R. Maestas, NMED | ED | A. Urquidez, RES | ED |

CBFO QA File
 CBFO M&RC
 *ED denotes electronic distribution



**CARLSBAD FIELD OFFICE
AUDIT PLAN**

Audit Number: A-18-04

Organization to be Audited Advanced Mixed Waste Treatment Project (AMWTP)

Organizations to be Notified: Fluor Idaho
U.S. Department of Energy – Idaho Operations Office (DOE-ID)
New Mexico Environmental Department (NMED)
U.S. Environmental Protection Agency (EPA)
Defense Nuclear Facilities Safety Board (DNFSB)

Date and Location: August 27 – 30, 2018
AMWTP Idaho National Laboratory (INL) Site near Idaho Falls, and
AMWTP Sawtelle Street, Idaho Falls, Facility

Audit Team:

| | |
|---------------------|---|
| Martin Navarrete | Carlsbad Field Office (CBFO) Office of Quality Assurance (QA) Management Representative |
| Dennis Miehls | CBFO QA Representative |
| Jim Vernon | Audit Team Leader, CBFO Technical Assistance Contractor (CTAC), Auditor (Organization/QA Program) |
| Cindi Castillo | Auditor, CTAC (NDA/PDP) |
| Harley Kirschenmann | Auditor, CTAC (Procurement, Graded Approach) |
| Bobby Hunt | Auditor, CTAC (Management and Independent Assessments) |
| Ricardo Chavez | Auditor, CTAC (AK) |
| John Fernandez | Auditor, CTAC (C6 QA, Training) |
| Jim Schuetz | Auditor, CTAC (C6 QA, WWIS/WDS, SQA) |
| Charlie Riggs | Auditor, CTAC (VE) |
| Prissy Yanez | Auditor, CTAC (C6 QA, Document Control, Records) |
| Porf Martinez | Auditor, CTAC (RTR) |
| B.J. Verret | Auditor, CTAC (Container Management, M&TE, Instrumentation) |
| Roger Vawter | Auditor, CTAC (C6 QA, Quality Improvement, Corrective Actions, Non-Conformances) |
| Dustin Stegman | Technical Specialist, CTAC (RTR) |
| Paul Gomez | Technical Specialist, CTAC (PL V&V) |
| Dick Blauvelt* | Technical Specialist, CTAC (AK) |
| Randy Fitzgerald | Technical Specialist, CTAC (AK) |
| Rhett Bradford | Technical Specialist, CTAC (VE) |
| Jim Oliver | Technical Specialist, CTAC (NDA/PDP) |
| Michael Hall | Technical Specialist, CTAC (NDA/PDP) |

Joe Lopez

Technical Specialist, CTAC (WWIS/WDS,
SQA)

*Indicates team member working via teleconference.

Audit Scope:

The audit team will evaluate the continued adequacy, implementation, and effectiveness of the AMWTP technical and QA activities performed for characterizing contact-handled (CH) transuranic waste. The QA and technical activities implemented at AMWTP for CH Summary Category Group (SCG) S3000, homogeneous solids, SCG S4000 soils/gravel and CH SCG S5000 debris will be evaluated.

The audit team will also verify that a technical review of the generator site's processes has been performed and any issues identified during the technical review have been resolved per DOE/WIPP-16-3564, *Generator Site Technical Review Procedure*.

The audit will evaluate the Enhanced Acceptable Knowledge (AK) process in accordance with DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC) Appendix H and I*. Surveillance S-18-16, conducted prior to audit A-18-04, determined that AMWTP has implemented the Enhanced AK process for waste stream BNINW216 (SCG S3000) in accordance with the WAC Appendices H and I.

The audit will also evaluate the adequacy, implementation and effectiveness of the mobile *In-Situ* Object Counting System (ISOCS) for Nondestructive Assay (NDA). The ISOCS system is new equipment that will be evaluated for full capabilities by the audit team.

A list of the equipment and processes to be evaluated is attached to this plan (see Attachment 1).

Governing Documents/Requirements:

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

- CBFO Management Procedure 5.2, *TRU Waste Program Certification/Recertification*
- DOE/CBFO-94-1012, *Quality Assurance Program Document*
- Waste Isolation Pilot Plant Hazardous Waste Facility Permit NM4890139088-TSDF
- DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*
- DOE/WIPP-07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis (Chapter 18)*

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

- PLN-5198, *Certification Plan for INL Transuranic Waste*
- PLN-5199, *Quality Assurance Project Plan*
- Related AMWTP 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

- Organization/QA Program
- Nonconformances
- Personnel Qualification and Training
- Measuring and Test Equipment (M&TE)
- Software Version Installation
- Quality Improvement
- Work Processes
- Procurement
- Audits/Assessments
- Records
- Container Management

Technical Activities

- Project-level Data Validation and Verification (PLV&V)
- AK, including waste certification
 - Including, but not limited to, Chemical Compatibility Evaluation Memorandum, Basis of Knowledge, AK Assessments, AK Briefings, Interface Waste Management Documents List
- Real-time Radiography (RTR)
- Visual Examination (VE)
- (NDA), including Performance Demonstration Program (PDP)
- WIPP Waste Information System/Waste Data System (WWIS/WDS)
Including, but not limited to, Statistical Approach to Material at Risk

Schedule of Audit Activities:

A pre-audit conference is scheduled for 8:30 a.m., Monday, August 27 2018, in the AMWTP Sawtelle St. Facility, Idaho Falls, Idaho.

Audit team caucuses will be held at 3:30 p.m., Monday, August 27, through Wednesday, August 29, 2018, and at 1:00 p.m. on Thursday, August 30, 2018.

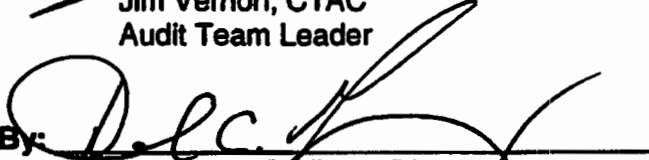
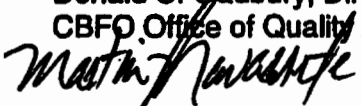
The audit team leader will meet with AMWTP management (as needed) to discuss audit concerns and audit progress at 8:30 a.m., Tuesday, August 27 through Thursday, August 30, 2018, in the AMWTP Sawtelle St. Facility, Idaho Falls, Idaho.

A post-audit conference is scheduled for 3:00 p.m., Thursday, August 30, 2018, in the AMWTP Sawtelle St. Facility, Idaho Falls, Idaho.

All meeting locations will be identified on the daily audit schedule.

Approved By: 
Jim Vernon, CTAC
Audit Team Leader

Date: 7-16-18

Approved By: 
Donald C. Gadbury, Director
CBFO, Office of Quality Assurance


Date: 7-16-18

7-16-18

| AMWTP LIST OF EQUIPMENT/PROCESSES | | | | | |
|-----------------------------------|------------------|---|--|---|--|
| WIPP # | Site Equipment # | Equipment Description | Components | Software | NDA Calibrated Range, Operating Range and TMU |
| NONDESTRUCTIVE ASSAY | | | | | |
| 9DA1 | Z-211-102 | <p>Canberra Integrated Waste Assay System (IWAS) for assay and isotopics on 55-gallon and 83/85-gallon drums</p> <p>DAS -102 - PDP Registration # AM01/AMN1 Method described in procedure TPR-8094</p> <p>Location: WMF-634</p> | <ul style="list-style-type: none"> Broad Energy Germanium (BEGe) gamma detectors 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential di-away modality Cf-252/Cs-137 Add-A-Source (AAS) correction source 14 MeV neutron generator Fast Neutron Detector Packs (FNDP) | <ul style="list-style-type: none"> NDA 2000 Canberra's Genie 2000 Multi-Group Analysis (MGA) Multi-Group Analysis-Uranium (MGA-U) | <p>The calibration of IWAS system was verified and documented in the site acceptance reports CI-IDA-NDA-0051 through CI-IDA-NDA-0054</p> <p>The calibration of the IWAS was verified and documented in CI-IDA-NDA-0035. Calibration Verification and Confirmation Procedure for the IWAS at AMWTP</p> <p>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</p> |
| 9DA2 | Z-211-103 | <p>Canberra Integrated Waste Assay System (IWAS) for assay and isotopics on 55-gallon and 83/85-gallon drums</p> <p>DAS-103 - PDP Registration # AM02/AMN2 Method described in procedure TPR-8094</p> <p>Location: WMF-634</p> | <ul style="list-style-type: none"> Broad Energy Germanium (BEGe) gamma detectors 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential di-away modality Cf-252/Cs-137 Add-A-Source (AAS) correction source 14 MeV neutron generator Fast Neutron Detector Packs (FNDP) | <ul style="list-style-type: none"> NDA 2000 Canberra's Genie 2000 Multi-Group Analysis (MGA) Multi-Group Analysis-Uranium (MGA-U) | <p>The calibration of IWAS system was verified and documented in the site acceptance reports CI-IDA-NDA-0051 through CI-IDA-NDA-0054</p> <p>The calibration of the IWAS was verified and documented in CI-IDA-NDA-0035. Calibration Verification and Confirmation Procedure for the IWAS at AMWTP</p> <p>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"</p> |

| AMWTP LIST OF EQUIPMENT/PROCESSES | | | | | |
|-----------------------------------|------------------|---|---|---|--|
| WIPP # | Site Equipment # | Equipment Description | Components | Software | NDA Calibrated Range, Operating Range and TMU |
| 9DA3 | Z-390-100 | <p>Canberra Integrated Waste Assay System (IWAS) - DAS3 – 55 gallon drums</p> <p>DAS-100 – PDP Registration # AM03/AMN3 Method described in TPR-8025</p> <p>Location: WMF-676</p> | <ul style="list-style-type: none"> • Broad Energy Germanium (BEGe) gamma detectors • 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential di- away modality • Cf-252/Cs-137 Add-A-Source (AAS) correction source • 14 MeV neutron generator • Fast Neutron Detector Packs (FNDP) | <ul style="list-style-type: none"> • NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U) | <p>The calibration of IWAS system was verified and documented in the site acceptance reports CI-IDA-NDA-0051 through CI-IDA-NDA-0054</p> <p>The calibration of the IWAS was verified and documented in CI-IDA-NDA-0035. Calibration Verification and Confirmation Procedure for the IWAS at AMWTP</p> <p>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</p> |

| AMWTP LIST OF EQUIPMENT/PROCESSES | | | | | |
|-----------------------------------|------------------|---|---|---|--|
| WIPP # | Site Equipment # | Equipment Description | Components | Software | NDA Calibrated Range, Operating Range and TMU |
| 9DA4 | Z-390-101 | <p>Canberra Integrated Waste Assay System (IWAS) - DAS4 - 55 gallon drums</p> <p>DAS-101 - PDP Registration # AM04/AMN4 Method described in TPR-8025</p> <p>Location: WMF-676</p> | <ul style="list-style-type: none"> 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) | <ul style="list-style-type: none"> NDA 2000 Canberra's Genie 2000 Multi-Group Analysis (MGA) Multi-Group Analysis-Uranium (MGA-U) | <p>The calibration of IWAS system was verified and documented in the site acceptance reports CI-IDA-NDA-0051 through CI-IDA-NDA-0054</p> <p>The calibration of the IWAS was verified and documented in CI-IDA-NDA-0035, Calibration Verification and Confirmation Procedure for the IWAS at AMWTP</p> <p>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</p> |
| 9RBAS1 | Z-212-105 | <p>Retrieval Box Assay System (RBAS)</p> <p>BAS-105- PDP Registration #AM05/AMN5 Method described in TPR-8095</p> <p>Location: WMF-634.</p> | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> PSC RBAS.exe PSC RWARS software package | <p>The calibration of the RBAS was verified and documented in PSC-5431-CCR-001, Calibration Confirmation Report. The determination of TMU for the RBAS unit is documented in BII-5112-TMU-001, AMWTP Retrieval Box Assay System Total Measurement Uncertainty Report</p> |

AMWTP LIST OF EQUIPMENT/PROCESSES

| WIPP # | Site Equipment # | Equipment Description | Components | Software | NDA Calibrated Range, Operating Range and TMU |
|--------|------------------|---|---|---|---|
| 9WAGS1 | WAGS-610 | Waste Assay Gamma Spectrometer (WAGS) WAGS – PDP Registration # AM07/AMG2 Method described in TPR-8093 Location: WMF-610 | <ul style="list-style-type: none"> • Broad Energy Germanium (BEGe) gamma detectors • Barium Transmission Source | <ul style="list-style-type: none"> • NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U) | The calibration of the WAGS was verified and documented in CCP-INL-WAGS-001 and CCP-INL-WAGS-003, Waste Assay Gamma Spectrometer (WAGS) Calibration, Confirmation, and Verification Reports, The determination of TMU for the WAGS is documented in CCP-INL-WAGS-002, Total Measurement Uncertainty for the WAGS System |
| 9SGRS1 | SGRS-610 | SWEPP Gamma-Ray Spectrometer (SGRS) SGRS – PDP Registration # AM06/AMG1 Method described in TPR-8092). Location: WMF-610 | <ul style="list-style-type: none"> • Broad Energy Germanium (BEGe) gamma detectors | <ul style="list-style-type: none"> • NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U) | The calibration of the WAGS was verified and documented in CCP-INL-SGRS-001 SWEPP Gamma-Ray Spectrometer (SGRS) Calibration, Confirmation, and Verification Report, The determination of TMU for the SGRS is documented in CCP-INL-SGRS-002, Total Measurement Uncertainty for the SGRS System |
| | Z-295-100 | In-situ Object Counting System (ISOCS) ISOCS – PDP Registration # AM08/AMG3 Method described in TPR-8182 Location: WMF-635 | <ul style="list-style-type: none"> • Broad Energy Germanium (BEGe) gamma detector | <ul style="list-style-type: none"> • NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U) | Drum Assay The calibration of the ISOCS was verified and documented in 1000008684, ISOCS Calibration, Confirmation and Verification Report. The determination of TMU for the ISOCS is documented in 1000008683, Total Measurement Uncertainty for ISOCS |

AMWTP LIST OF EQUIPMENT/PROCESSES

| WPP # | Site Equipment # | Equipment Description | Components | Software | NDA Calibrated Range, Operating Range and TMU |
|-------|------------------|--|--|---|--|
| | Z-295-101 | In-situ Object Counting System (ISOCS) ISOCS – PDP Registration # AM09/AMG4 Method described in TPR-8182 Location: WMF-835 | <ul style="list-style-type: none"> • Low Energy Germanium (LEGe) gamma detector | <ul style="list-style-type: none"> • NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U) | Drum Assay The calibration of the ISOCS was verified and documented in 1000008684, ISOCS Calibration, Confirmation and Verification Report. The determination of TMU for the ISOCS is documented in 1000008683, Total Measurement Uncertainty for ISOCS |
| | Z-295-200 | In-situ Object Counting System (ISOCS) ISOCS – PDP Registration AM010/AMG5 Method described in TPR-8182 Location: WMF-835 | <ul style="list-style-type: none"> • Broad Energy Germanium (BEGe) gamma detector | <ul style="list-style-type: none"> • NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U) | Box Assay The calibration of the ISOCS was verified and documented in 1000008684, ISOCS Calibration, Confirmation and Verification Report. The determination of TMU for the ISOCS is documented in 1000008683, Total Measurement Uncertainty for ISOCS |
| | Z-295-201 | In-situ Object Counting System (ISOCS) ISOCS – PDP Registration # AM011/AMG6 Method described in TPR-8182 Location: WMF-835 | <ul style="list-style-type: none"> • Low Energy Germanium (LEGe) gamma detector | <ul style="list-style-type: none"> • NDA 2000 • Canberra's Genie 2000 • Multi-Group Analysis (MGA) • Multi-Group Analysis-Uranium (MGA-U) | Box Assay The calibration of the ISOCS was verified and documented in 1000008684, ISOCS Calibration, Confirmation and Verification Report. The determination of TMU for the ISOCS is documented in 1000008683, Total Measurement Uncertainty for ISOCS |

| AMWTP LIST OF EQUIPMENT/PROCESSES | | | | | |
|------------------------------------|------------------|---|------------|-----------------------------|---|
| WPP # | Site Equipment # | Equipment Description | Components | Software | NDA Calibrated Range, Operating Range and TMU |
| NON-DESTRUCTIVE EXAMINATION | | | | | |
| 9RR1 | Z-213-101 | Real-Time Radiography System Method described in TPR-8 Location: WMF-634 | RTR System | Waste Tracking System (WTS) | N/A |
| 9RR2 | Z-213-106 | Real-Time Radiography System Method described in procedure in TPR-8089. Location: WMF-634 | RTR System | Waste Tracking System (WTS) | N/A |
| 9RR3 | RTR-RTR-1001 | Real-Time Radiography System Method described in procedure TPR-8120. Location: WMF-810 | RTR System | Waste Tracking System (WTS) | N/A |
| VISUAL EXAMINATION | | | | | |
| 9VE2 | N/A | Visual Examination (in lieu of RTR) (VEC) Method described in TPR-8103. Location: WMF-634. | N/A | Waste Tracking System (WTS) | N/A |
| 9VE3 | N/A | Newly Generated Waste Visual Examination Closure (VNC) Method described in TPR-8103. Location: WMF-634. | N/A | Waste Tracking System (WTS) | N/A |
| 9VE6 | N/A | Newly Generated Waste Visual Examination Closure (VNC) Method described in TPR-8041. Location: WMF-676 | N/A | Waste Tracking System (WTS) | N/A |
| 9VE7 | N/A | Box Line Visual Examination (VEB) – Box to drum repackaging Method described in TPR-8041. Location: WMF-676 | N/A | Waste Tracking System (WTS) | N/A |
| 9VE8 | N/A | Box Line Visual Examination (VEB) – Drum to new drum repackaging Method described in TPR-8041. Location: WMF-676 | N/A | Waste Tracking System (WTS) | N/A |
| 9VE12 | N/A | Visual Examination: ARP Packaging Stations (VEA and VEP). Newly-generated waste from retrieval of buried waste at the INL Method described in TPR-7997. Location: -ARP/SRP | N/A | Waste Tracking System (WTS) | N/A |