Recertification Audit A-15-01 of the AMWTP Transuranic Waste Characterization and Certification Program

Please be advised that an audit team from the U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) will conduct a recertification audit of the Advanced Mixed Waste Treatment Project (AMWTP) at the Energy Drive Facility in Idaho Falls, Idaho, and at the Idaho National Laboratory near Idaho Falls on October 7-9, 2014.

The AMWTP characterization activities for contact-handled Summary Category Group (SCG) S3000 homogeneous solids waste and SCG S5000 debris waste will be evaluated during the audit. The audit will be conducted in accordance with the attached audit plan. Representatives from the DOE CBFO and the New Mexico Environment Department may be present to observe the audit. In addition, the U.S. Environmental Protection Agency may conduct an independent inspection of the AMWTP and/or an inspection of the CBFO audit process.

Your representatives are requested to coordinate with the audit team to develop the necessary documentation for the audit team to gain access to the AMWTP facilities, conduct the audit, and have appropriate access to necessary documentation and records. Please provide meeting rooms for the entrance and exit meetings, and work rooms for the audit team and observers. The audit team will need a full set of documentation applicable to the AMWTP characterization activities for waste to be transported to the Waste Isolation Pilot Plant, including procedures.

If you have any questions or comments concerning the audit, please contact me at (575) 234-7483.

Martin P. Navarréte
Senior Quality Assurance Specialist

Attachment
cc: w/attachment
M. Brown, CBFO
J. R. Stroble, CBFO
D. Miehls, CBFO
M. Pinzel, CBFO
N. Castaneda, CBFO
J. Cooper, DOE-ID
J. Wells, DOE-ID
T. Jenkins, DOE-ID
D. Haar, AMWTP
G. Byram, AMWTP
G. Tedford, AMWTP
E. Schweinsberg, AMWTP
A. Morse, AMWTP
T. Peake, EPA
L. Bender, EPA
E. Feltcorn, EPA
R. Joglekar, EPA
S. Ghose, EPA
R. Lee, EPA
J. Kieling, NMED
T. Kliphuis, NMED
S. Holmes, NMED
R. Maestas, NMED
C. Smith, NMED
V. Daub, CTAC
R. Allen, CTAC
P. Martinez, CTAC
B. Pace, CTAC
C. Castillo, CTAC
D. Harvill, CTAC
G. White, CTAC
Site Documents
CBFO QA File
CBFO M&RC

*ED denotes electronic distribution
CARLSBAD FIELD OFFICE AUDIT PLAN

Audit Number: A-15-01

Organization: Advanced Mixed Waste Treatment Project (AMWTP)

Organizations to be Notified: Idaho Treatment Group
New Mexico Environment Department
U.S. Environmental Protection Agency
Defense Nuclear Facilities Safety Board

Date and Location: October 7-9, 2014
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) Quality Assurance (QA) Division
Dennis Miehls - CBFO QA Representative
Cindi Castillo - Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Tammy Ackman - Auditor, CTAC (VE)
Harley Kirschenmann - Auditor, CTAC (C6 QA, Records, Documents, Audits/Assessments)
Greg Knox - Auditor, CTAC (NDA)
Katie Martin - Auditor, CTAC (C6 QA, Training)
Mike Noland - Auditor, CTAC (Organization/QA Program)
Berry Pace - Auditor, CTAC (RTR)
Charlie Riggs - Auditor, CTAC (AK)
Jim Schuetz - Auditor, CTAC (C6 QA, WWIS/WDS, Software Control, Procurement, Work Processes)
Roger Vawter - Auditor, CTAC (C6 QA, Quality Improvement, Inspection & Testing)
Dick Blauvelt - Technical Specialist, CTAC (AK, Waste Certification, Load Management)
Paul Gomez - Technical Specialist, CTAC (PL V&V)
Porf Martinez - Technical Specialist, CTAC (VE)
Priscilla 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 the AMWTP technical and quality assurance (QA) activities performed for characterizing contact-handled 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. The specific items to be audited are listed below.

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

The following QA processes will be audited:

- Organization/QA Program Implementation
- 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)
- Audits/Assessments
- Container Management
- Software Control

The following waste characterization technical elements will be audited:

- 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)
- 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-15-01 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 Contact-Handled 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 7, 2014, at the AMWTP Energy Drive Facility in Idaho Falls, Idaho.

Audit team caucuses will be held at 3:30 p.m., Tuesday and Wednesday, October 7 and 8, 2014, and at 1:00 p.m. on Thursday, October 9, 2014.

The audit team leader will meet with AMWTP management (if needed) to discuss audit concerns and audit progress at 8:30 a.m., on Wednesday and Thursday, October 8 and 9, 2014.

A post-audit conference is scheduled for 3:00 p.m., Thursday, October 9, 2014.

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

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**Approved By:**

Cindi Castillo, CTAC  
Audit Team Leader  
Date: 8/5/14

**Approved By:**

Michael R. Brown, Director  
CBFO Quality Assurance Division  
Date: 8/14/14
<table>
<thead>
<tr>
<th>WPP #</th>
<th>Site Equipment #</th>
<th>Equipment Description</th>
<th>Components</th>
<th>Software</th>
<th>NDA Calibrated Range, Operating Range and TMU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NON-DESTRUCTIVE ASSAY</strong></td>
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</table>
| 9DA1  | Z-211-102        | Canberra Integrated Waste System (IWAS) for assay and isotopics on 55-gallon and 83/85-gallon drums | • Broad Energy Germanium (BEGe) gamma detectors
• 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential decay modality
• CI-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 determination of total measurement uncertainty (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-311-103        | Canberra Integrated Waste System (IWAS) for assay and isotopics on 55-gallon and 83/85-gallon drums | • Broad Energy Germanium (BEGe) gamma detectors
• 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential decay modality
• CI-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 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 System (IWAS) - DAS3 - 55-gallon drums | • Broad Energy Germanium (BEGe) gamma detectors
• 122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential decay modality
• CI-252/Cs-137 Add-A-Source (AAS) correction source
• 14 MeV neutron generator | • 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 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. |
### Processes and Equipment to be Reviewed During Audit A-15-01

<table>
<thead>
<tr>
<th>WPP #</th>
<th>Site Equipment #</th>
<th>Equipment Description</th>
<th>Components</th>
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<th>NDA Calibrated Range, Operating Range and TMU</th>
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<td>WIPP Site</td>
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<td>Components</td>
<td>Software</td>
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<td>Fast Neutron Detector Packs (FNDP)</td>
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<td>Core Energy Germanium (CEG) gamma detectors</td>
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<td>122 helium-3 tubes used in passive neutron coincidence counting modality and the active neutron differential decay modality</td>
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<td>Cf-252/Cs-137 Add-A-Source (AAS) correction source</td>
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<td>14 MeV neutron generator</td>
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<td>Canberra's Genie 2000</td>
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<td>Multi-Group Analysis-Uranium (MGA-U)</td>
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<td>The calibration of IWAS system was verified and documented in the site acceptance reports CHIDA-NDA-0054 through CHIDA-NDA-0054. The determination of TMU for the IWAS unit is documented in CHIDA-NDA-0055, Total Measurement Uncertainty for the AMWTP Integrated Waste Assay Systems, Revision 1, July 30, 2003.</td>
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### NON-DESTRUCTIVE EXAMINATION

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<th>9RR1</th>
<th>Z-213-101</th>
<th>Real-Time Radiography System</th>
<th>RTR System</th>
<th>Waste Tracking System (WTS)</th>
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<td>Z-213-103</td>
<td>Real-Time Radiography System</td>
<td>RTR System</td>
<td>Waste Tracking System (WTS)</td>
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<td>9RR3</td>
<td>RTR-RTR-1001</td>
<td>Real-Time Radiography System</td>
<td>RTR System</td>
<td>Waste Tracking System (WTS)</td>
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### VISUAL EXAMINATION

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<tr>
<th>9VE2</th>
<th>N/A</th>
<th>Visual Examination (in lieu of RTR) (VEC)</th>
<th>N/A</th>
<th>Waste Tracking System (WTS)</th>
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<tr>
<td>9VE3</td>
<td>N/A</td>
<td>Newly Generated Waste Examination Closure (VNC)</td>
<td>N/A</td>
<td>Waste Tracking System (WTS)</td>
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<td>WPP #</td>
<td>Site Equipment #</td>
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<td>Components</td>
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<td>9VE5</td>
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<td>Method described in INST-FOI-17</td>
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<td>9VE6</td>
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<td>9VE7</td>
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<td>9VE8</td>
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<td>9VE10</td>
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<td>Method described in INST-01-34</td>
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## AMWTP DEACTIVATED EQUIPMENT AND PROCESS LIST

<table>
<thead>
<tr>
<th>WPP #</th>
<th>Site Equipment #</th>
<th>Equipment Description</th>
<th>Date Deactivated</th>
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<tbody>
<tr>
<td>9HG1</td>
<td>Z-220-001A</td>
<td>Nuclear Filter Technology Drum Vent System – Mass Spectrometer, Unit A</td>
<td>8/6/06</td>
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<td>9HG2</td>
<td>Z-220-001B</td>
<td>Nuclear Filter Technology Drum Vent System – Mass Spectrometer, Unit B</td>
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<td>9HG3</td>
<td>Z-220-001C</td>
<td>Nuclear Filter Technology Drum Vent System – Mass Spectrometer, Unit C</td>
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<td>9HG4</td>
<td>Z-221-001A</td>
<td>Consonant Technology Inc. (CTI) – Gas Chromatography/Mass Spectrometry (GC/MS) System</td>
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<td>9HG5</td>
<td>Z-221-001B</td>
<td>Consonant Technology Inc. (CTI) – Gas Chromatography/Mass Spectrometry (GC/MS) System</td>
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<tr>
<td>9DC1</td>
<td>Z-260-002</td>
<td>Drum Coring and Sample Collection Glove Box</td>
<td>3/13</td>
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### VISUAL EXAMINATION

<table>
<thead>
<tr>
<th>VEG</th>
<th>N/A</th>
<th>Box Line Visual Examination (VEB) – Box to Drum Repackaging</th>
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<tr>
<td>9VE11</td>
<td>N/A</td>
<td>Sludge Visual Examination Closure (VSC) – S2000 to a new container</td>
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Method described in INST-F03-22