Mike Brown
Quality Assurance Manager
Carlsbad Field Office
U.S. Department of Energy
P.O. Box 3090
Carlsbad, New Mexico 88221-3090

Dear Mr. Brown:

The U.S. Environmental Protection Agency conducted a remote quality assurance (QA) audit of the Advanced Mixed Waste Treatment Project (AMWTP), located at the Idaho National Laboratory in Idaho Falls, from September 24, 2014 to February 26, 2015. The purpose of the audit was to verify implementation of AMWTP’s QA program relative to the requirements of American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA) Standard NQA-1-1989.¹ “Quality Assurance Program Requirements for Nuclear Facilities.”

AMWTP is responsible for storing, treating, and characterizing radioactive wastes, including transuranic (TRU) waste destined for emplacement at the Waste Isolation Pilot Plant (WIPP). The EPA limited the scope of the audit to ensuring that the AMWTP activities affecting WIPP wastes are performed in compliance with the requirements of the NQA-1-1989 standard.

During this audit, the EPA auditors reviewed documents and records provided by AMWTP and interviewed applicable AMWTP personnel by phone and email. The EPA QA auditors evaluated the AMWTP QA program against the NQA-1-1989 elements listed below to ensure compliance with EPA regulations at Title 40 of the Code of Federal Regulations (40 CFR) 194.22:

- Element 1. “Organization.”
- Element 2. “Quality Assurance Program.”
- Element 4. “Procurement Document Control.”
- Element 5. “Instruction, Procedures and Drawings.”
- Element 7. “Control of Purchased Items and Services.”
- Element 8. “Identification and Control of Items.”
- Element 9. “Control of Processes.”
- Element 10. “Inspection.”

¹ 40 CFR 194.22(a)(1) states that DOE’s QA program shall comply with the requirements of the 1989 version of the ASME NQA-1 standard.
• Element 11. “Test Control.”
• Element 12. “Control of Measuring and Test Equipment.”
• Element 13. “Handling, Storage, and Shipping.”
• Element 14. “Inspection, Test, and Operating Status.”
• Element 15. “Control of Nonconforming Items.”
• Element 16. “Corrective Action.”
• Element 17. “QA Records.”
• Element 18. “Audits.”

Based on this audit, the EPA determines that the AMWTP QA program continues to comply with these NQA-1-1989 elements and has sufficient independence, authority and resources to verify the quality of items and activities that are important to long-term isolation of TRU waste.

No concerns were identified.

If you have any questions regarding this QA audit report, please contact Ed Felton at (202) 343-9422 or felton.ed@epa.gov.

Sincerely,

[Signature]

Tom Peake
Director
Center for Waste Management and Regulations

Enclosure

cc: Electronic Distribution
    Todd Shrader, CBFO
    Mike Brown, Manager, CBFO QA
    Dennis Michls, CBFO QA
    Martin Navarrete, CBFO QA
    Ricardo Maestas, NMED
    Raymond Lee, EPA HQ
    Nick Stone, EPA Region 6
    Alton Harris, DOE HQ
    Site Documents
EPA REMOTE AUDIT OF THE ADVANCED MIXED WASTE TREATMENT PROJECT QUALITY ASSURANCE PROGRAM

SEPTEMBER 24, 2014–FEBRUARY 26, 2015

U.S. Environmental Protection Agency
Radiation Protection Division
Center for Waste Management & Regulations
1200 Pennsylvania Avenue, NW
Washington, DC 20460

APRIL 2016
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**ACRONYMS AND ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AMWTP</td>
<td>Advanced Mixed Waste Treatment Project</td>
</tr>
<tr>
<td>ASME</td>
<td>American Society of Mechanical Engineers</td>
</tr>
<tr>
<td>CAR</td>
<td>Corrective Action Report</td>
</tr>
<tr>
<td>CBFO</td>
<td>Carlsbad Field Office</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CTAC</td>
<td>Carlsbad Field Office Technical Assistance Contractor</td>
</tr>
<tr>
<td>DOE</td>
<td>U.S. Department of Energy</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>EPA/DC</td>
<td>Environmental Protection Agency Docket Center</td>
</tr>
<tr>
<td>INL</td>
<td>Idaho National Laboratory</td>
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<tr>
<td>ITG</td>
<td>Idaho Treatment Group</td>
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<tr>
<td>NDA</td>
<td>nondestructive assay</td>
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<tr>
<td>NQA</td>
<td>nuclear quality assurance</td>
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<tr>
<td>PM</td>
<td>Programs Manager</td>
</tr>
<tr>
<td>QA</td>
<td>quality assurance</td>
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<tr>
<td>QAPD</td>
<td>Quality Assurance Program Document</td>
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<tr>
<td>RBAS</td>
<td>Retrieval Boxed Assay System</td>
</tr>
<tr>
<td>RIR</td>
<td>Receiving Inspection Report</td>
</tr>
<tr>
<td>RTD</td>
<td>resistance temperature detector</td>
</tr>
<tr>
<td>RTR</td>
<td>real-time radiography</td>
</tr>
<tr>
<td>SME</td>
<td>Subject Matter Expert</td>
</tr>
<tr>
<td>SPM</td>
<td>Site Project Manager</td>
</tr>
<tr>
<td>TRU</td>
<td>transuranic</td>
</tr>
<tr>
<td>VEE</td>
<td>Visual Examination Expert</td>
</tr>
<tr>
<td>WIPP</td>
<td>Waste Isolation Pilot Plant</td>
</tr>
<tr>
<td>WJC West</td>
<td>William Jefferson Clinton West</td>
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</table>
1.0 EXECUTIVE SUMMARY

This report presents results of the U.S. Environmental Protection Agency (EPA) audit of the U.S. Department of Energy’s (DOE’s) Advanced Mixed Waste Treatment Project (AMWTP) quality assurance (QA) program. EPA conducted this remote audit during fall and winter 2014/2015. The purpose of the audit was to verify implementation of AMWTP’s QA program relative to the requirements of American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA) Standard NQA-1-1989, \(^1\) “Quality Assurance Program Requirements for Nuclear Facilities.” AMWTP is responsible for storing, treating, and characterizing radioactive wastes, including transuranic (TRU) waste destined for emplacement at the Waste Isolation Pilot Plant (WIPP). EPA limited the scope of the audit to ensuring that the AMWTP activities affecting WIPP wastes are performed in compliance with the requirements of the NQA-1-1989 standard.

During this audit, the EPA audit team reviewed documents and records provided by AMWTP and discussed these documents and records with AMWTP QA personnel via email and teleconferences. EPA QA auditors evaluated the AMWTP QA program against the NQA-1-1989 standard to ensure compliance with EPA regulations at Title 40 of the Code of Federal Regulations (40 CFR 194.22).

Based on this audit, the EPA audit team determined that the AMWTP WIPP QA program continues to comply with these NQA-1-1989 elements and continues to have sufficient independence, authority and resources to verify the quality of items and activities that are important to long-term isolation of TRU waste.

EPA did not identify any nonconformances in AMWTP’s WIPP QA program relative to the requirements of ASME NQA-1-1989. This report documents these audit activities.

This information will be provided through EPA’s Electronic Docket (via regulations.gov) and the official Air Docket, in accordance with 40 CFR 194.22(a)(1). EPA’s Air Docket A-98-49 is located at the Air and Radiation Docket in the EPA Docket Center (EPA/DC), WJC West, Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004.

2.0 BACKGROUND

2.1 Regulatory Background

In accordance with 40 CFR 194.22(a)(1), EPA requires DOE to implement a QA plan that establishes the following NQA standards developed by ASME:

3. ASME NQA-3-1989 [excluding section 2.1(b) and (c) and section 17.1].

The regulation at 40 CFR 194.22(a)(2) requires DOE to implement its QA plan for all items and activities that are important to the long-term isolation of TRU waste within the WIPP. The

\(^1\) 40 CFR 194.22(a)(1) states that DOE’s QA program shall comply with the requirements of the 1989 version of the ASME NQA-1 standard.
regulation at 40 CFR 194.22(e) provides EPA with the authority to conduct audits to verify the proper establishment and implementation of QA programs for the WIPP.

2.2 Organizational Background

The AMWTP facility is an advanced waste treatment facility and is critical to DOE’s ability to meet their commitments to prepare and ship waste out of Idaho. AMWTP is managed and operated by Idaho Treatment Group. Operations at AMWTP require the retrieval, characterization, treatment and packaging of TRU waste currently stored at DOE’s Idaho site. AMWTP performs all activities related to TRU waste destined for WIPP under the Carlsbad Field Office (CBFO) Quality Assurance Program Document (QAPD).^2^  

3.0 PURPOSE AND SCOPE

The purpose of this EPA audit was to verify that the AMWTP WIPP QA program continues to properly implement selected elements of ASME NQA-1-1989. The scope of this EPA audit was limited to QA oversight of activities that are important to the long-term isolation of TRU waste as represented by records and documentation provided by AMWTP.

4.0 DEFINITIONS

**Finding:** A determination that a requirement of the NQA standards has not been properly established or implemented. A finding requires a response.

**Concern:** A judgment that a finding may occur in the future and, depending on the magnitude of the issue, may or may not require a response.

**Quality:** The reliability of a specific item or activity that is important to the long-term isolation of TRU waste in the WIPP. “Quality achievement” is the responsibility of operational groups that directly produce such an item or perform such an activity. “Quality assurance/verification” is the responsibility of QA groups that do not produce such an item or perform such an activity.

5.0 AUDIT PARTICIPANTS

The audit team consisted of one EPA employee and four support contractors. Table 1 lists all members of the EPA audit team, along with each person’s affiliation and function during this audit.

---

Table 1. EPA Quality Assurance Audit Team Members

<table>
<thead>
<tr>
<th>Audit Team Member</th>
<th>Audit Responsibility</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>Lindsey Bender</td>
<td>EPA QA Audit Team Leader</td>
<td>EPA</td>
</tr>
<tr>
<td>Patrick Kelly</td>
<td>Lead QA Auditor</td>
<td>SC&amp;A, Inc.</td>
</tr>
<tr>
<td>Dorothy Gill</td>
<td>QA Auditor</td>
<td>SC&amp;A, Inc.</td>
</tr>
<tr>
<td>Kira Darlow</td>
<td>QA Auditor</td>
<td>SC&amp;A, Inc.</td>
</tr>
</tbody>
</table>

Prior to this audit, Lindsey Bender (EPA) evaluated the qualifications of the SC&A auditors listed in Table 1. Ms. Bender found that the SC&A auditors were qualified based on their:

- Working knowledge and understanding of the NQA standards.
- Training.
- On-the-job training.

In addition, Ms. Bender evaluated the qualifications of Mr. Kelly to be a Lead Auditor in oversight of DOE QA audits specific to Element 18 of NQA-1-1989 and found that he is qualified in this capacity based on his:

- Communication skills.
- Technical qualifications.
- Specific understanding of NQA-1, Element 18.

Mr. Lindblad was an auditor-in-training during this audit; his qualifications as a QA auditor will be addressed in a subsequent EPA QA audit report.

Table 2 lists all DOE personnel who participated in this audit.

Table 2. DOE Personnel who Participated in Audit Meetings

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation and Title/Position</th>
</tr>
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<tbody>
<tr>
<td>Angie Morse</td>
<td>AMWTP/ITG QA Manager</td>
</tr>
<tr>
<td>Ben Roberts</td>
<td>DOE-ID</td>
</tr>
<tr>
<td>Bob Blyth</td>
<td>DOE-ID QA SME</td>
</tr>
<tr>
<td>Cindi Castillo</td>
<td>CTAC, QA Auditor/Observer</td>
</tr>
<tr>
<td>Dennis Michls</td>
<td>CBFO, Senior QA Specialist</td>
</tr>
<tr>
<td>George Byrum</td>
<td>AMWTP/ITG TRU PM</td>
</tr>
<tr>
<td>Gina Tedford</td>
<td>AMWTP/ITG SPM</td>
</tr>
<tr>
<td>Martin Navarrete</td>
<td>CBFO, Senior QA Specialist</td>
</tr>
<tr>
<td>Michael R. Brown</td>
<td>CBFO, QA Director</td>
</tr>
<tr>
<td>Michelle Sharp</td>
<td>AMWTP/ITG Senior QA Specialist</td>
</tr>
</tbody>
</table>

6.0 PERFORMANCE OF THE AUDIT

The EPA audit team reviewed records provided by AMWTP and asked clarifying questions of AMWTP personnel during scheduled teleconferences to evaluate implementation of the requirements in ASME NQA-1-1989. AMWTP stated, and EPA concurred, that NQA-1-1989,
Element 3, "Design Control" is not applicable to work currently performed by AMWTP for WIPP-related work.

The remaining 17 NQA-1-1989 elements listed below are applicable to work currently performed by AMWTP for WIPP-related activities and were therefore evaluated during this audit.

- Element 1, "Organization."
- Element 2, "Quality Assurance Program."
- Element 4, "Procurement Document Control."
- Element 5, "Instruction, Procedures and Drawings."
- Element 6, "Document Control."
- Element 7, "Control of Purchased Items and Services."
- Element 8, "Identification and Control of Items."
- Element 9, "Control of Processes."
- Element 10, "Inspection."
- Element 11, "Test Control."
- Element 12, "Control of Measuring and Test Equipment."
- Element 13, "Handing, Storage, and Shipping."
- Element 14, "Inspection, Test, and Operating Status."
- Element 15, "Control of Nonconforming Items."
- Element 16, "Corrective Action."
- Element 17, "QA Records."
- Element 18, "Audits."

The EPA audit team reviewed documents and records provided by AMWTP and conducted teleconferences with AMWTP personnel to evaluate implementation of the requirements in ASME NQA-1-1989 for these elements, using NQA-1-1989 checklists. The checklists will be made available to the public through EPA's Electronic Docket (via regulations.gov) and EPA's Air Docket A-98-49, located at the Air and Radiation Docket in the EPA/DC WJC West, Room 3334, 1301 Constitution Ave., NW, Washington, DC 20004, as mentioned above.

As recovery from the February 2014 events at the repository continues, QA oversight of the operations is especially important. During this audit, EPA evaluated selected aspects of the CBFO QA program to ensure that it has the appropriate independence, authority, and resources to oversee WIPP-related operations.

As a result of these audit activities, EPA determined that the AMWTP WIPP QA program complies with these NQA-1-1989 elements and has sufficient independence, authority and resources to verify the quality of items and activities that are important to long-term isolation of TRU waste.

7.0 FINDINGS AND CONCERNS

The EPA audit team did not identify any findings or concerns relative to the NQA-1-1989 elements discussed above.
8.0 CONCLUSIONS

The EPA audit team reviewed records and documentation and interviewed personnel to determine the continued compliance of the AMWTP WIPP QA program with ASME NQA-1-1989. Based on the sample of records, documentation and elements reviewed during this audit, EPA determined that AMWTP continues to comply with the standard.
9.0 REFERENCES

2013 Approved Vendor List, July 15, 2013
AMWTP Corrective Action Reports List, provided September 19, 2014
AMWTP Independent Assessment Schedule for FY 2014, provided September 29, 2014
AMWTP QA Assessment Plan, IA-11-01 – TRU Program Level II Validation, May 10, 2011
Auditor Qualification Package – QCAUDITR, L. Ryman, March 31, 2011
CAR Nos. 71155, 71902, and 79759, provided November 30, 2014
DOE/WIPP 11-3384, CBFO Approved Filter Vents, Revision 10, July 2014
Email Distributing IA-11-01 – TRU Program Level II Validation to E. Schweisenberg, July 6, 2011
EVL-RPT-056, Quality Program Evaluation Report (Form 1087) for Pajarito Scientific Corporation, February 25, 2008
Expiration for Qualification Auditor list, September 24, 2014
Expiration for Qualification Lead Auditor, September 24, 2014
Form 1373, Standard Procurement Quality Clauses
Form 1456, Instrument Calibration/Check, VAC-PLP-1803, July 5, 2014
IA-11-01 – TRU Program Level II Validation, June 2011, July 6, 2011
INST-CMNT-10.5.1, Calibration and Control of Measuring and Test Equipment, Revision 13, August 28, 2014
INST-FOI-01 (Revision 30) Case File, In-Plant Drum Assay Operations, Provided November 30, 2014
INST-FOI-01, In-Plant Drum Assay Operations, Revision 30, May 12, 2014
INST-FOI-17, Facility Visual Examination Operations, Revision 27, September 3, 2013
INST-MI-1014, Revision 2, Sample Refrigerator Temperature Calibration/Check, November 2, 2011
INST-MI-1019, Revision 1, RTD Transmitter/Loop Calibration/Check, June 15, 2006
INST-OI-12, Real-Time Radiography Examinations (Certification Scans), Revision 55, August 25, 2014
INST-OI-14, Drum Assay Operations, Revision 35, December 17, 2013
INST-OI-34, Non-Facility Visual Examination Operations, Revision 28, September 3, 2013
IRSF Record Authorization Access – provided November 30, 2014
MP-CMNT-10.5, Measuring and Test Equipment Program, Revision 10, September 29, 2012
MP-CMNT-10.14, In-Plant and Process Instrumentation Testing Program, Revision 6, August 23, 2012
MP-COPS-9.6, Occurrence Reporting, Revision 11, December 29, 2011
MP-COPS-9.18, Work management, Planning, and Control, Revision 4, May 7, 2014
MP-DOCS-18.1, Developing Written Work Instructions, Revision 14, June 25, 2013
MP-DOCS-18.2, Records Management, Revision 17, May 23, 2013
MP-DOCS-18.3, Developing Management Procedures, Revision 8, November 14, 2012
MP-DOCS-18.4, Document Control, Revision 39, February 6, 2014
MP-M&IA-17.2, Independent Assessment, Revision 12, January 30, 2014
MP-M&IA-17.3, Quality Assurance Surveillance, Revision 8, September 12, 2012
MP-PCMT-15.1, Acquisition of Material and Services, Revision 16, April 15, 2014
MP-PCMT-15.8, Property Management Programs Procedure, Revision 7, August 29, 2013
MP-PCMT-15.21, Material Management, Revision 8, March 5, 2013
MP-Q&SI-5.1, Investigation and Root Cause Analysis, Revision 9, September 13, 2012
MP-Q&SI-5.3, Corrective Action, Revision 13, July 3, 2013
MP-Q&SI-5.4, Identification of Nonconforming Conditions, Revision 21, September 17, 2012
MP-Q&SI-5.8, Qualifying Supply Chain Inspectors, Auditors, Lead Auditors and Technical Specialists, Revision 8, September 13, 2012
MP-Q&SI-5.10, Corrective Action Review Board Charter, Revision 10, May 1, 2014
MP-Q&SI-5.11, Suspect/Counterfeit Item Identification and Control, Revision 4, June 5, 2013
MP-RTQP-14.1, Preparation and Administration of Training Plans, Revision 16, May 12, 2014
MP-RTQP-14.3, Training Exceptions, Exemptions, and Extensions, Revision 3, November 20, 2012
MP-RTQP-14.4, Personnel Qualification and Certification, Revision 22, November 27, 2013
MP-RTQP-14.16, Training Program Evaluation, Revision 8, May 29, 2013
MP-RTQP-14.20, Training Implementation Matrix, Revision 9, August 30, 2012
MP-TRUW-8.2, Quality Assurance Project Plan, Revision 0, August 29, 2002, and Revision 17, June 11, 2013
PD-RTQP-01, Training Program Description, Revision 3, May 29, 2013
PO 12-518 RIR, Receiving Inspection Report for 100 Gallon Puck Drums, October 17, 2012
PO 14-1400, RBAS Procurement, August 13, 2014
PO 14-2072 RIR, Receiving Inspection Report for Inner Lid Filter Procurement, September 29, 2014
PO 14-2072, Inner Lid Filter Procurement, July 16, 2014
QA: Organization 2.01.02.00, Quality Assurance Organization Chart, September 4, 2014
QAPP-01, Quality Assurance Program Plan, Revision 14, June 10, 2013
Qualification/Certification Endorsement Form, Auditor Qualification, M. Sharp, December 8, 2008
RTR Personnel Qualification Report, November 24, 2014
VEE Lead Requalification Package – QCVEELEA, D. Preston, July 2, 2014
VEE Requalification Package – QCVEE001, R. Grise, April 3, 2013
Work Order No. 446979 for Annual Inspection of Core Sampling Refrigerator, Z-232-003, January 30, 2013
Work Order No. 484777 for Annual Calibration of Pressure Loop, VAC-PLP-1803, July 5, 2014