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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
AIR AND RADIATION

Mike Brown
Quality Assurance Manager
Carlsbad Field Office
U.S. Department of Energy
P.O. Box 3090
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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 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."

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 Feltcorn at (202) 343-9422 or feltcorn.ed@epa.gov.

Sincerely,



Tom Peake
Director
Center for Waste Management and Regulations

Enclosure

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**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

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

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:

1. ASME NQA-1-1989.
2. ASME NQA-2a-1990 Addenda, Part 2.7, to ASME NQA-2-1989.
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.

²Quality Assurance Program Document, U.S. Department of Energy Carlsbad Field Office, DOE/CBFO-94-1012, Revision 11, June 2010

Table 1. EPA Quality Assurance Audit Team Members

Audit Team Member	Audit Responsibility	Affiliation
Lindsey Bender	EPA QA Audit Team Leader	EPA
Patrick Kelly	Lead QA Auditor	SC&A, Inc.
Dorothy Gill	QA Auditor	SC&A, Inc.
Kira Darlow	QA Auditor	SC&A, Inc.
Karl Lindblad	QA Auditor-in-Training	SC&A, Inc.

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

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

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.”
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- Element 10, “Inspection.”
- 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.”

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

Drum Assay Qualification Package –QPOT3B, S. Jordan, February 25, 2013, and J. Ragan, October 2, 2013

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

Expirations for Qualification Auditor list, September 24, 2014

Expirations for Qualification Lead Auditor, September 24, 2014

Facility Drum Assay Qualification Package – FQPOT9B, N. Bjorkman, July 11, 2013, and S. Ward, November 27, 2013

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

Inspection and Test Personnel Qualification Record – QSCINSPE, D. Neiers, March 31, 2008, and March 14, 2014, and J. Shuman, March 15, 2007 and February 28, 2013

INST-CMNT-10.5.1, Calibration and Control of Measuring and Test Equipment, Revision 13, August 28, 2014

INST-CMNT-10.14.1, Testing In-Plant and Process Instrumentation, Revision 8, September 23, 2012

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

Lead Auditor Qualification Package – QCLEADAD, M. Sharp, August 24, 2009, and L. Ryman, September 28, 2011

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 (Revision 9) Case File, Acquisition of Material and Services, Provided November 30, 2014

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-8.1, Certification Plan for INL Transuranic Waste, Revision 24, June 5, 2013

MP-TRUW-8.2, Quality Assurance Project Plan, Revision 0, August 29, 2002, and Revision 17, June 11, 2013

NDA Expert Technical Reviewer/Independent Technical Reviewer Qualification Package – QCNDAETR, J. Seamans, August 5, 2013

PD-RTQP-01, Training Program Description, Revision 3, May 29, 2013

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PO 14-1400, RBAS Procurement, August 13, 2014

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Position Description – QA Engineer, M. Sharp, February 3, 2014, and L. Ryman, April 14, 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

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VEE Lead Requalification Package – QCVEELEA, D. Preston, July 2, 2014

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