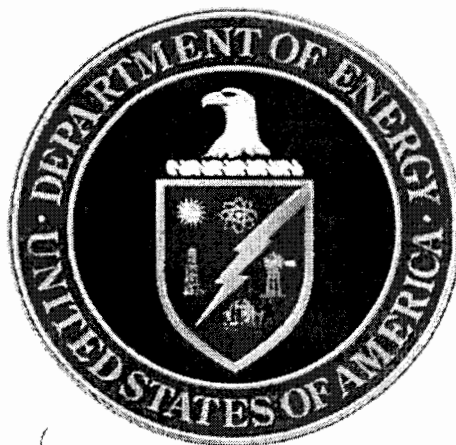


U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE
INTERIM AUDIT REPORT
OF THE
ADVANCED MIXED WASTE TREATMENT PROJECT
TRU WASTE CHARACTERIZATION AND CERTIFICATION
ACTIVITIES
IDAHO FALLS, IDAHO
AUDIT NUMBER A-10-24
August 23 – 26, 2010



Prepared by:

P. Martinez

Porf Martinez, CTAC
Audit Team Leader

Date:

9/28/10

Approved by:

Marti Navarrete

Ava Holland, CBFO
Quality Assurance Director

Date:

9/21/10

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Recertification Audit A-10-24 was conducted to evaluate the adequacy, implementation, and effectiveness of Advanced Mixed Waste Treatment Project (AMWTP) transuranic (TRU) waste characterization activities performed at the Idaho National Laboratory (INL) relative to the requirements detailed in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), the *CBFO Quality Assurance Program Document (QAPD)*, and the *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*.

The audit was performed at the INL and AMWTP facilities in Idaho Falls, Idaho, August 23 through 26, 2010. The audit team concluded that overall, the AMWTP technical and quality assurance (QA) programs, as applicable to the audited activities, were adequate in addressing upper-tier requirements. The audit team concluded that overall, the defined AMWTP QA and technical programs for contact-handled (CH) Summary Category Group (SCG) S3000 homogeneous solids and S5000 debris waste were being satisfactorily implemented in accordance with the CBFO QAPD, the HWFP *Waste Analysis Plan (WAP)*, and the WAC, and were effective in achieving the desired results.

The audit team identified three deficiencies, isolated in nature and requiring only remedial corrective action, that were corrected during the audit (CDA). The corrections were verified prior to the end of the audit (see section 6.2). One Observation was identified during the audit, and one Recommendation was offered for management consideration. The Observation and Recommendation are described in section 7.

2.0 SCOPE AND PURPOSE

2.1 Scope

The audit team evaluated the adequacy, implementation, and effectiveness of the AMWTP TRU waste characterization activities for CH SCG S3000 homogeneous solids and CH SCG S5000 debris waste.

The following general areas from Attachment B6, Section B6-3 of the HWFP were audited:

- Results of previous audits
- Changes in programs or operations
- New programs or activities being implemented
- Changes in key personnel

The following CBFO QA elements were audited:

- Organization/QA Program Implementation
- Personnel Qualification and Training
- Quality Improvement (nonconformance reporting and corrective action)

- Documents and Records
- Work Processes
- Procurement
- Inspection and Testing (control of measuring and test equipment (M&TE) for data collection)
- Audits/Assessments
- Sample Control
- Container Management
- Software Control

The following CBFO waste characterization technical elements were audited for CH SCG S3000 homogeneous solids and CH SCG S5000 debris waste:

- Project-Level Data Validation and Verification (V&V)
- Acceptable Knowledge (AK)
- Real-time Radiography (RTR)
- Visual Examination (VE)
- Solids Sampling
- Headspace Gas (HSG) Sampling and Analysis
- Performance Demonstration Program (PDP)
- Nondestructive Assay (NDA)
- Waste Certification (Waste Stream Profile Form)
- WIPP Waste Information System/Waste Data System (WWIS/WDS)

Evaluation of adequacy of AMWTP documents were based on the current revisions of the following documents:

- *Quality Assurance Program Document (QAPD)*, DOE/CBFO-94-1012
- Hazardous Waste Facility Permit, Waste Isolation Pilot Plant EPA No. NM4890139088-TSDF, the New Mexico Environment Department (HWFP)
- *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*, DOE/WIPP-02-3122

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

- *AMWTP Certification Plan for INEEL Contact-Handled Transuranic Waste*, MP-TRUW-8.1
- *AMWTP Quality Assurance Project Plan (QAPjP)*, MP-TRUW-8.2
- Related AMWTP quality assurance and technical implementing procedures

2.2 Purpose

Audit A-10-24 was conducted to assess the level of AMWTP compliance to HWFP requirements for waste characterization activities related to the certification of CH SCG S3000 homogeneous solids and CH SCG S5000 debris waste. The audit team also evaluated the AMWTP QA program with regard to the requirements of the CBFO QAPD.

3.0 AUDIT TEAM AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Martin Navarrete	CBFO Management QA Representative
Porf Martinez	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Jack Walsh	Auditor, CTAC
Greg Knox	Auditor, CTAC
Tammy Bowden	Auditor, CTAC
Cindi Castillo	Auditor, CTAC
Nick Wade	Auditor, CTAC
Mario Chavez	Auditor, CTAC
Harold Washington	Auditor, CTAC
Priscilla Martinez	Auditor, CTAC
BJ Verret	Technical Specialist, CTAC
Paul Gomez	Technical Specialist, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Rhett Bradford	Technical Specialist, CTAC
Jim Oliver	Technical Specialist, CTAC

OBSERVERS

Steve Zappe	New Mexico Environment Department (NMED)
Steve Holmes	NMED
Ricardo Maestas	NMED
Connie Walker	NMED Contractor
Dennis Miehl	CBFO Management QA Representative
Kathy Leonard	CBFO Office of the National TRU Program
Dorothy Gill	Environmental Protection Agency
Pete Johansen	Idaho Department of Environmental Quality
Bruce LaRue	Idaho Department of Environmental Quality

4.0 AUDIT PARTICIPANTS

The individuals at the INL and AMWTP facilities who were contacted during the audit are identified in Attachment 1. A pre-audit meeting was held in Building EDF-259, conference room WMF-1613, of the AMWTP Energy Drive Facilities in Idaho Falls, Idaho, on August 23, 2010. Daily meetings were held with AMWTP management and

staff to discuss the previous day's issues and potential deficiencies. The audit was concluded with a post-audit meeting held in Building EDF-259, conference room WMF-1613, of the AMWTP Energy Drive Facilities in Idaho Falls, Idaho, on August 26, 2010.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

This audit was performed to assess the ability of AMWTP to characterize CH SCG S3000 homogeneous solids and CH SCG S5000 debris waste to the requirements specified in the CBFO QAPD, the HWFP WAP, and the WAC. The related characterization methods assessed were AK, HSG Sampling and Analysis, Solids Sampling and Analysis, RTR, VE and NDA. Other areas evaluated were project-level data V&V, data quality objective (DQO) reconciliation, the preparation of waste stream profile forms (WSPFs), WWIS/WDS data entry, PDP, and the AMWTP QA program.

The audit team concluded that the applicable AMWTP TRU waste characterization activities, as described in the associated AMWTP implementing procedures, are satisfactory in meeting upper-tier requirements. Attachment 2 contains a Summary Table of Audit Results. Attachment 3 contains a table of documents evaluated during the audit. Attachment 4 is a list of processes and equipment evaluated during the audit. Details of audit activities are described below.

5.2 General

5.2.1 Results of Previous Audits

The results of CBFO recertification Audit A-09-19 of AMWTP were examined. No conditions adverse to quality (CAQ) were issued as a result of the referenced audit.

5.2.2 Changes in Programs or Operations

There have been no significant changes in programs or operations since the performance of the referenced audit.

5.2.3 New Programs or Activities Being Implemented

No new programs or activities have been implemented since the performance of the referenced audit.

5.2.4 Changes in Key Personnel

No changes in key personnel have been made since the performance of the referenced audit.

5.3 Quality Assurance Activities

Each QA element audited is discussed in detail in the following sections. The methods used to select objective evidence are discussed, the objective evidence used to assess compliance with the CBFO QAPD is cited briefly, and the results of the assessment are provided.

5.3.1 Organization/QA Program Implementation

The audit team interviewed QA management personnel and reviewed associated documentation to verify that the AMWTP met the requirements of the CBFO QAPD, Section 1.1, Organization and Quality Assurance Program. The AMWTP QA Program is clearly documented and the current program complies with QAPD requirements. The audit team reviewed AMWTP procedures MP-TRUW-8.2, Rev. 13, *Quality Assurance Project Plan*; MP-TRUW-8.1, Rev. 1, *Certification Plan for INL Transuranic Waste*; and MP-Q&SI-5.6, Rev. 3, *Graded Approach*, to determine the degree to which the procedures adequately addresses upper-tier requirements. The QA Grading process continues to be implemented and QA program evaluation results are provided to upper levels of program management. No concerns were identified during the audit.

The documents reviewed and evaluated during the audit provided evidence that the applicable requirements for Organization/QA Program Implementation are adequately established, satisfactorily implemented, and effective.

5.3.2 Personal Qualification and Training

The audit team verified that the AMWTP met the requirements of QAPD Section 1.2, Personnel Qualification and Training. The audit team conducted interviews with responsible personnel in the AMWTP Training Department. The following implementing procedures were reviewed to determine the degree to which the procedures adequately address upper-tier requirements: MP-RTQP-14.4, Rev. 16, *Personnel Qualification and Certification*; MP-RTQP-14.6, Rev. 6, *Job Analysis*; MP-RTQP-14.16, Rev. 5, *Training Program Evaluation*; MP-RTQP-14.19, Rev. 5, *Training Records Administration*; MP-RTQP-14.20, Rev. 8, *Training Implementation Matrix (TIM)*; and MP-Q&SI-5.8, Rev. 7, *Qualifying Supply Chain Inspectors, Auditors, Lead Auditors, and Technical Specialists*.

Personnel training records associated with VE, RTR, NDA, Solids Sampling and Analysis, HSG, AK, and site project management were examined to verify implementation of associated requirements and to verify that personnel performing characterization activities are appropriately qualified. Record reviews included individual training plans, qualification and requalification checklists/packages, training course reports, and required reading documentation. No concerns were identified during the audit.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for personnel training and qualification are adequately established, satisfactorily implemented, and effective.

5.3.3 Quality Improvement (Nonconformance Reporting and Corrective Action)

The audit team verified that the AMWTP met the requirements of QAPD Section 1.3, Quality Improvement. The audit team conducted interviews with representatives of the AMWTP QA Program. The following implementing procedures were reviewed to determine the degree to which the procedures adequately address upper-tier requirements: MP-Q&SI-5.1, Rev. 8, *Investigation and Root Cause Analysis*; MP-Q&SI-5.3, Rev. 10, *Corrective Action*; MP-Q&SI-5.4, Rev. 19, *Identification of Nonconforming Conditions*; and MP-Q&SI-5.8, Rev. 7, *Qualifying Supply Chain Inspectors, Auditors, Lead Auditors, and Technical Specialists*.

Randomly selected nonconformance reports (NCRs) and corrective action reports (CARs) were evaluated to ensure that conditions adverse to quality were appropriately identified, documented, dispositioned, resolved, and tracked through closure. The selected NCRs and CARs were reviewed, including verifications to ensure that AMWTP was appropriately documenting and reporting WAP-related nonconformances (identified at the site project management level) to CBFO as required. No concerns were identified during the audit.

The documents reviewed and evaluated during the audit provided evidence that the applicable requirements for Quality Improvement are adequately established, satisfactorily implemented, and effective.

5.3.4 Documents

The audit team verified that the AMWTP met the requirements of QAPD Section 1.4, Documents. The audit team evaluated AMWTP procedures MP-DOCS-18.1, Rev. 11, *Developing Written Work Instructions*; MP-DOCS-18.3, Rev. 7, *Developing Management Procedures*; and MP-DOCS-18.4, Rev. 30, *Document Control*, to determine the degree to which the procedures adequately address the requirements of the CBFO QAPD.

The audit team interviewed document control personnel, observed document control activities, and evaluated the processes for Document Change Requests (DCRs), procedures and instructions case files, and approved procedures and instructions. The audit team determined that the document control processes were performed adequately and in accordance with AMWTP procedures. No concerns were identified during the audit.

The documents reviewed and evaluated during the audit provided evidence that the applicable requirements for Document Control are adequately established, satisfactorily implemented, and effective.

5.3.5 Records

The audit team verified that the AMWTP met the requirements of QAPD Section 1.5, Records. The audit team evaluated the adequacy of AMWTP procedure MP-DOCS-18.2, Rev. 13, *Records Management*, with respect to the requirements of the CBFO QAPD and determined that the procedure contains adequate flow-down of upper-tier requirements.

The audit team interviewed records management personnel and observed activities to determine if AMWTP record storage methods were in compliance with procedural requirements. Documents such as record coordinator designation and training, file indexes, records transmittals, and records indexes were reviewed during the evaluation. The audit team observed records management activities at the records center. No concerns were identified during the audit.

The documents reviewed and evaluated during the audit provided evidence that the applicable requirements for Records Management are adequately established, satisfactorily implemented, and effective.

5.3.6 Work Processes

The audit team verified that the AMWTP met the requirements of QAPD Section 2.1, Work Processes. The audit team evaluated the adequacy of AMWTP Procedures MP-CD&M-11.1, Rev. 8, *Change Control*, and INST-CD&M-11.1.2, Rev. 10, *Facility Modification Proposal Preparation*, with respect to the CBFO QAPD, and determined that the procedures and instructions contain adequate flow-down of upper-tier requirements.

The audit team reviewed facility modification proposals, temporary physical change forms, and test and investigation forms, and conducted interviews with appropriate AMWTP personnel. The audit team verified that the processes for documenting unreviewed safety question (USQ) evaluator reviews and USQ determinations are performed in accordance with the procedural requirements.

One condition adverse to quality was identified and corrected during the audit. Section 4.4, Drawing and Design Documentation, of Facility Modification Proposal, FMP-1073, did not identify any drawing or other design documentation and was therefore correctly marked "N/A." The Design Lead/Project Lead making the determination recorded "N/A" on the signature line instead of his printed name, signature, and date. Seven facility modification proposals were reviewed, and FMP-1073 was the only one lacking a signature (see section 6.2, CDA 1).

The documents reviewed and evaluated during the audit provided evidence that the applicable requirements for Work Processes are adequately established, satisfactorily implemented, and effective.

5.3.7 Procurement

The audit team verified that the AMWTP met the requirements of QAPD Section 2.3, Procurement. The audit team evaluated the adequacy of AMWTP procedures MP-PCMT-15.1, Rev. 10, *Acquisition of Materials and Services*, and MP-PCMT-15.21, Rev. 6, *Materials Management*, with respect to the CBFO QAPD, and determined that the procedures and instructions contain adequate flow-down of upper-tier requirements.

The audit team interviewed procurement personnel and reviewed randomly selected Purchase Orders, Purchase Requisitions, Warehouse Supporting Document File Check Sheets, Receiving Inspection Reports, Commercial Grade Item/Service Dedication Plans, AMWTP Approved Vendor List, Unsatisfactory, Over, Short, and Damaged (UOS&D) Material Reports, Packing/Packaging Lists, Straight Bill of Ladings, Certificates of Conformance, Nonconformance Reports, Suspect/Counterfeit Item Training Documentation, Standard Procurement Quality Clauses Documentation, and Supplier Performance Evaluation Rating Form Services Documentation. AMWTP uses an electronic system to track inventory, MAXIMO. The audit team evaluated inventory shelf-life documentation maintained in MAXIMO. No concerns were identified during the audit.

The documents reviewed and evaluated during the audit provided evidence that the applicable requirements for Procurement are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.3.8 Inspection and Testing (Control of Measurement and Test Equipment (M&TE) for Data Collection)

The audit team verified that the AMWTP met the requirements of QAPD Section 2.4, Inspection and Testing. The audit team evaluated the adequacy of AMWTP procedures MP-CMNT-10.5, Rev. 8, *Calibration of Measuring and Test Equipment Program*; INST-CMNT-10.5.1, Rev. 10, *Calibration and Control of Measuring and Test Equipment*; MP-CMNT-10.14, Rev. 5, *In-Plant and Process Instrumentation Testing Program*, and INST-CMNT-10.14.1, Rev. 7, *Testing In-Plant and Process Instrumentation*, with respect to the CBFO QAPD and determined that the procedures and instructions contain adequate flow-down of upper-tier requirements.

The audit team interviewed personnel and reviewed the M&TE Equipment List located in the Computerized Maintenance Management System (CMMS), Certificates of Calibration, Preventative Maintenance forms, M&TE Checkout Logs, M&TE Usage Logs, and M&TE Evaluations. No concerns were identified during the audit.

The documents reviewed and evaluated during the audit provided evidence that the applicable requirements for Inspection and Testing are adequately established, satisfactorily implemented, and effective.

5.3.9 Audits/Assessment

The audit team verified that the AMWTP met the requirements of QAPD Section 3, Assessment Requirements. The audit team evaluated the adequacy of AMWTP procedures MP-M&IA-17.1, Rev. 10, *Management Assessment*; MP-M&IA-17.2, Rev. 8, *Independent Assessment*; MP-M&IA-17.3, Rev. 7, *Quality Assurance Surveillances*; and MP-TRUW-8.26, Rev. 5, *Reports to Management*, with respect to the CBFO QAPD and determined that the procedures contain adequate flow-down of upper-tier requirements.

The audit team interviewed QA personnel and evaluated 2009 and 2010 QA Independent Assessment Schedules, Lead Auditor Qualification Documentations, Bechtel BWXT Idaho, LLC (BBWI) QA Assessment Notification Letters, Corrective Action Reports, and AMWTP QA Programs Manager E-Mail Assessment Notifications. No concerns were identified during the audit.

The documents reviewed and evaluated during the audit provided evidence that the applicable requirements for Audits/Assessments are adequate, satisfactorily implemented, and effective.

5.3.10 Sample Control

The audit team verified that the AMWTP met the requirements of QAPD Section 4, Sample Control Requirements. The audit team evaluated the adequacy of AMWTP procedures MP-TRUW-8.17, Rev. 7, *Co-Located Core Sampling Control Charts*; MP-TRUW-8.34, Rev. 6, *WIPP Sample Transfers*; INST-OI-16, Rev. 34, *Drum Coring Operations*; INST-OI-43, Rev. 18, *HGAS Sampling and Analysis Operations*; INST-OI-73, Rev. 7, *Manual Drum Coring Operations*; and INST-OI-75, Rev. 4, *Container-in-Container Sampling*, with respect to the CBFO QAPD and determined that the procedures contain adequate flow-down of upper-tier requirements.

The audit team interviewed personnel and reviewed documentation while evaluating the sample control activities for HSG sampling and solids sampling at the AMWTP. Sample custody, storage, and sample release were determined to be adequate. No concerns were identified during the audit.

The documents reviewed and evaluated during the audit provided evidence that the applicable requirements for Sample Control are adequately established, satisfactorily implemented, and effective.

5.3.11 Container Management

The audit team conducted interviews with responsible personnel and reviewed AMWTP implementing procedures MP-TRUW-8.12, Rev. 22, *Waste Receipt and Shipping Inspection*; MP-TRUW-8.25, Rev. 17, *Random Selection of Containers for Headspace Gas and Solids Sampling and Analysis*; INST-OI-09, Rev. 40, *Retrieval Enclosure Waste Container Extraction*; and INST-OI-11, Rev. 39, *Waste Container Handling*,

relative to container management activities, to determine the degree to which procedures adequately address upper-tier requirements.

Container management activities were evaluated by a walkthrough of AMWTP container storage areas and interviews with operators involved with container management. Tracking of containers using the Waste Tracking System was performed by obtaining container numbers in the field of stored containers, then looking the containers up in the Waste Tracking System. Package Shipping Checklists were examined for incoming empty TRUPACT/HalfPACT containers and outgoing filled TRUPACT/HalfPACT containers and were found to be satisfactory. A waste manifest for an outgoing shipment was verified to be compliant. The audit team verified storage of containers with NCRs were separated from containers without NCRs. Storage of containers ready for shipment was verified to be satisfactory in precluding non-eligible containers from being shipped to WIPP. No concerns were identified during the audit.

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for container management are adequately established, satisfactorily implemented, and effective.

5.3.12 Software Control

The audit team verified that the AMWTP met the requirements of QAPD Section 6, Software Requirements. The audit team evaluated the adequacy of AMWTP procedures MP-CD&M-11.2, Rev. 15, *Software Quality Assurance*; INST-CD&M-11.2.1, Rev. 7, *Software Version Control*; INST-CD&M-11.2.2, Rev. 8, *Software Inventory Classification*; and INST-CD&M-11.2.3, Rev. 5, *System Data Change Request*, with respect to the CBFO QAPD and determined that the procedures contain adequate flow-down of upper-tier requirements.

The audit team evaluated the implementation of the of AMWTP Software QA processes. The execution of the requirements for the development, procurement, maintenance and use of computer software used for processing, controlling, and measuring radioactive waste materials was evaluated. The evaluation included a review of the development and control of software baselines implemented for the Waste Tracking System and associated sub-systems used for waste characterization. The Configuration Management system and its associated tools [Test Track Pro and Polytron Version Control System (PVCS)] for software version control were also part of the assessment.

The documentation reviewed included issue management for both problem reports and change requests as incorporated with the Software Change Request (SCR) process. A sample of the following document types was reviewed: Facility Modification Proposals (FMP), Software Quality Plans, User Requirements Specification (URS), System Design Descriptions (SDD), Software Change Impact Analysis, Software Test Cases, User Acceptance Testing (UAT), Software Test Reports, Test Scripts, and Build Scripts used in the release process.

The process for data collection, reduction, manipulation and storage applies to implementation of the System Data Change Request (SDCR) process relating to production of computer code reference tables. The documentation reviewed included a sample of SDCR forms as implemented in the Waste Tracking System. No concerns were identified during the audit.

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for Software Control are adequately established, satisfactorily implemented, and effective.

5.4 Technical Activities

Each technical area audited is discussed in detail in the following sections. The methods used to select objective evidence are discussed, the objective evidence used to assess compliance with the HWFP is cited briefly, and the results of the assessment are provided.

5.4.1 Table B6-1, WAP Checklist

The audit was performed to assess AMWTP's ability to manage and perform TRU waste characterization and certification activities for CH SCG S3000 homogeneous solids and CH SCG S5000 debris waste. The B6-1 WAP checklist addresses general program requirements from an overall management perspective. The general requirements checklist addresses both technical requirements and QA programmatic requirements that, when collectively implemented, ensure effective overall management of TRU waste characterization and certification activities. Requirements are integrated into controlled documents that will ensure the waste characterization strategy as defined in the WAP is accomplished and documented in accordance with controlled processes and procedures.

The audit team evaluated both the QA program, including aspects of the B6-1 checklist, and the technical activities defined in the remaining B6 checklists. The following items related to QA program implementation were evaluated by the audit team:

- **Personnel Qualification and Training:** The audit team conducted interviews with responsible personnel and reviewed AMWTP implementing procedures MP-RTQP-14.4, Rev. 16, *Personnel Qualification and Certification*; MP-RTQP-14.19, Rev. 5, *Training Records Administration*; and MP-RTQP-14.20, Rev. 8, *Training Implementation Matrix (TIM)*, relative to the training and qualification of personnel, to determine the degree to which the procedures adequately address HWFP B6-1 QA requirements.

Personnel training records associated with VE, RTR, NDA, Solids Sampling and Analysis, HSG, AK, and site project management were examined to verify implementation of associated requirements and to verify that personnel performing characterization activities are appropriately qualified. Record reviews

included individual training plans, qualification and requalification checklists/packages, training course reports, and required reading documentation. No concerns were identified during the audit.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for personnel training and qualification are adequately established for compliance with HWFP B6-1 QA requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

- **QA Records:** The audit team conducted interviews and reviewed AMWTP implementing procedure MP-DOCS-18.2, Rev. 13, *Records Management*, relative to the control and administration of QA records to determine the degree to which the procedures adequately address HWFP B6-1 QA requirements. Control of QA records was verified through review of the AMWTP Record Categories, Classification, Disposition, and Retention Matrix and associated characterization process batch data reports (BDRs). No concerns were identified during the audit.

The procedure reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for QA records are adequately established for compliance with HWFP B6-1 QA requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

- **Nonconformance:** The audit team conducted interviews with responsible personnel and reviewed AMWTP implementing procedure MP-Q&SI-5.4, Rev. 19, *Identification of Nonconforming Conditions*, relative to nonconformances, to determine the degree to which the procedure adequately addresses HWFP B6-1 QA requirements.

The audit team reviewed randomly selected NCRs to ensure that nonconformances were appropriately documented, resolved, and tracked through closure. Review of the selected NCRs included verifications to ensure that AMWTP was appropriately documenting and reporting WAP-related nonconformances identified at the site project management level to the CBFO, as required. No concerns were identified during the audit.

The procedure reviews, field observations, and document reviews provided evidence that the applicable requirements for nonconformances are adequately established for compliance with HWFP B6-1 QA requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

- **Transportation:** The audit team conducted interviews with AMWTP Waste Certification Officials and reviewed AMWTP implementing procedure MP-TRUW-

8.12, Rev. 22, *Waste Receipt and Shipping Inspection*, relative to transportation requirements, to determine the degree to which the procedure adequately addresses HWFP B6-1 QA requirements.

The audit team evaluated shipping documentation and verified that the generator/storage site accurately completed the EPA Hazardous Waste Manifest as required, including the container-specific information, and the shipment documentation was included within the shipment package. No concerns were identified during the audit.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for transportation are adequately established for compliance with HWFP B6-1 QA requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

- **WWIS/WDS:** The audit team conducted interviews with responsible personnel and reviewed AMWTP implementing procedure MP-TRUW-8.5, Rev. 25, *TRU Waste Certification*, relative to WWIS/WDS data entry, to determine the degree to which the procedure adequately addresses HWFP B6-1 QA requirements.

The AMWTP method for TRU waste certification was evaluated to the requirements of the INL certification plan for certifying TRU waste, along with the CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC). The evaluation included a demonstration of data input into the WDS and system capabilities. It was proven during the demonstration that data could be satisfactorily transmitted to the WIPP. No concerns were identified during the audit.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for WWIS/WDS are adequately established for compliance with HWFP B6-1 QA requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

Technical activities evaluated, including both characterization and certification activities, consisted of data-generation and project-level data V&V, AK, RTR, VE, Solids Sampling and Analysis, HSG Sampling and Analysis (including PDP participation), NDA (including PDP participation), and preparation of WSPFs for CH SCG S3000 homogeneous solids and CH SCG S5000 debris waste. Objective evidence was selected and reviewed to evaluate the implementation of the associated characterization activities. BDRs, sampling records, and personnel training documentation were included in the evaluation. The audit included direct observation of actual waste characterization activities. Each characterization process involves:

- Collecting raw data
- Collecting quality assurance/quality control (QA/QC) samples or information

- Reducing the data to a useable format, including a standard report
- Review of the report by the data generation facility and the site project office
- Comparing the data against program DQOs
- Reporting the final waste characterization information to WIPP

The flow of data from the point of generation to inclusion in the WSPF for each characterization technique was reviewed to ensure that all applicable requirements were captured in the site operating procedures. Specific procedures audited and the objective evidence reviewed are described in the following sections.

During the audit, AMWTP demonstrated compliance with the characterization requirements of the HWFP through documentation and by performing characterization activities.

Objective evidence was reviewed to ensure project-level activities were adequately performed to support waste characterization. BDRs were evaluated based on project-level requirements for NDA, VE, RTR, HSG Sampling and Analysis, and Solids Sampling and Analysis for CH SCG S3000 homogeneous solids and CH SCG S5000 debris waste. The random selection requirements for HSG were evaluated, along with the associated BDRs. In addition, procedures and objective evidence were reviewed to ensure that AMWTP could adequately perform data reconciliation and properly prepare a WSPF. The audit team reviewed AMWTP procedures MP-TRUW-8.14, Rev. 11, *Preparation of Waste Steam Profile Forms*; MP-TRUW-8.8, Rev. 29, *Level I Data Validation*; and MP-TRUW-8.9, Rev. 21, *Level II Data Validation*.

Objective evidence was reviewed to determine the adequacy of the site project management V&V procedures. The flow of data from the point of generation to inclusion in the WSPF for each characterization technique was reviewed to ensure that all applicable requirements were captured in the site operating procedures.

A review was performed of the CH S5000 debris and CH S3000 homogeneous solids WSPF/Characterization Information Summary (CIS) for BN510 Super-compacted Debris Waste Stream Profile Package Rev. 9, and BN222 Solidified Plutonium Recovery Incinerator Waste Rev. 0. To aid in the review process, site project management utilizes AK documents for the waste reviewed include AK summary reports for waste streams BNIN216, BNINW218, BN835, BN510, BN004, BN836, and BN222.

The project-level data V&V process was evaluated by reviewing the following BDRs:

Radiography (RTR)

RTR09-00117 RTR10-00007
RTR09-00129 RTR10-00113

Visual Examination (VE)

VEB09-01309 VEB10-00251
VEB10-00787

Solids

SSC09-00007	ALD10015V
SSC10-00001	ALD10015S
SSC10-00002	ALD10015N
SSG09-00007	ALD10015M

Headspace Gas (HSG)

HS109-00014
HS110-00004
HS110-00014

NDA: Integrated Waste Assay System (IWAS)

ASY10-00444
ASY10-00527
ASY10-01147
ASY10-01337

Two conditions adverse to quality were identified and corrected during the audit. While reviewing BDRs, the audit team identified that a proper error correction was not done on Form-1599, AMWTP Solid Sampling Checklist, criteria 13a and 13b, in BDR Number SSC10-00002. Seventeen BDRs were reviewed; BDR SSC10-00002 was the only one with a correction error (see section 6.2, CDA 2).

The second condition adverse to quality was identified during review of Form-1609, SPM Analysis of Homogenous Solids and Soils/Gravel Checklist. The response for question 53 had no indication of Yes, No, or N/A for BDR Number ALD100155. Seventeen BDRs were reviewed; BDR ALD100155 was the only one lacking a response to a question on Form-1609 (see section 6.2, CDA 3).

The audit team verified that AMWTP is satisfactorily implementing the program requirements from an overall management perspective, including the project-level data V&V process to characterize and certify waste for disposal in accordance with HWFP requirements. Overall, project-level activities were determined to be adequate, satisfactorily implemented, and effective.

5.4.2 Table B6-2, Solids and Soils/Gravel Sampling Checklist

The audit team evaluated the AMWTP's ability to characterize CH SCG S3000 homogeneous solids waste and CH SCG S4000 soils/gravel waste using solids sampling. The AMWTP has the capability to sample both CH S3000 homogeneous solids waste and CH SCG S4000 soils/gravel wastes. The following solids sampling procedures evaluated during the audit:

- MP-TRUW-8.17, Rev. 7, *Co-Located Core Sampling Control Charts*
- INST-OI-16, Rev. 34, *Drum Coring Operations*
- MP-TRUW-8.34, Rev. 6, *WIPP Sample Shipments*
- INST-OI-73, Rev. 7, *Manual Drum Coring Operations*
- INST-OI-75, Rev. 4, *Container-in-Container Sampling*
- MP-TRUW-8.8, Rev. 29, *Level I Data Validation*
- MP-RTQP-14.20, Rev. 8, *Training Implementation Matrix*

The solids sampling procedures were found to be adequate in meeting HWFP requirements. AMWTP solids sampling activities were evaluated by examining BDRs SSG09-00007 and SSC10-00002. There were no ongoing solids sampling or sample shipment activities at the time of this audit; however, the audit team toured the Building WMF-634 Coring Facility and examined coring tools and storage of sampling equipment. The audit team reviewed training records for solids sampling operators to verify that the required training and qualifications had been achieved. Equipment blank records were audited, sample tags were checked, custody seals were examined, and control charts were verified.

The AMWTP performs its own S3000 solids sampling and performs S4000 sampling for other generator sites. The AMWTP retains responsibility for the accuracy and completeness of S3000 BDRs by performing project-level data V&V. Solids analysis was not evaluated as part of this audit. The AMWTP utilizes the services of the INL analytical laboratory for analysis of solids samples. The INL laboratory program is audited and approved by CBFO and is currently qualified and certified. No concerns were identified in this area during the audit.

Overall, Solids and Soils/Gravel Sampling activities were determined to be adequate in addressing the requirements of the WAP, satisfactory in the implementation of these requirements and effective in achieving the desired results.

5.4.3 Table B6-3, Acceptable Knowledge

The audit team evaluated the AMWTP Acceptable Knowledge process utilizing the WAP B6 checklists, primarily checklist B6-3, as a guide for demonstration of permit compliance for the characterization and certification of CH SCG S3000 homogeneous solids and CH SCG S5000 debris waste. The audit team also evaluated AMWTP's Acceptable Knowledge process for compliance with the WIPP WAC. The audit team reviewed AMWTP procedures MP-TRUW-8.11, Rev. 17, *Data Reconciliation*; MP-TRUW-8.13, Rev. 21, *Collection, Review, and Management of Acceptable Knowledge Documentation*; and MP-TRUW-8.14, Rev. 11, *Preparation of Waste Steam Profile Forms*.

Numerous documents from the AK record that document compliance were reviewed and compiled as objective evidence including relevant AK Summary Reports, WSPFs and attachments, AK Source Document Summaries, BDRs from characterization testing, and data reconciliation packages that compared the results of characterization

testing with the AK record. In addition, the audit team examined AK discrepancy resolution documentation for discrepancies in the AK record and discrepancies identified during characterization testing, along with reviewing NCRs dealing with the identification and treatment of prohibited items. Two waste streams were examined during the audit: CH S5000 mixed waste debris stream BN510, Supercompacted Debris Waste, and S3000 mixed waste solids stream BN222, Solidified Recovery Incinerator Waste. In addition to the respective AK Summary Reports for these streams, RPT-TRUW-30, Rev. 6, and RPT-TRUW-77, Rev. 0, supporting information from AK upper-tier documents were reviewed, including RPT-TRUW-06, *AMWTP Baseline AK for Newly Generated Waste*; RPT-TRUW-56, *AK Knowledge for INL Stored TRU Waste-Rocky Flats Plant*; RPT-TRUW-12, *AMWTP Waste Stream Designations*; RPT-TRUW-07, *Determination of Radioisotopic Content in TRU Waste Based on AK*; and RPT-TRUW-05, *Waste Matrix Code Reference Manual*.

Nine drums were tracked for the WAP-required traceability exercise: two drums from the BN222 waste stream, one of which was part of the solids sampling and analysis lot, and seven drums from the BN510 supercompacted waste stream, including four drums from distinct HSG sampling and analysis lots for both the boxline and direct feed processes in the AMWTF. In addition to reviewing the relevant characterization BDRs, the audit team also compiled traceability data from active and historic waste container databases.

The AK audit team issued one recommendation that dealt with clarification of language in the two AK Summary Reports (see Recommendation 1 in section 7.2). All of the changes were non-data-quality affecting modifications to these documents.

Overall, the Acceptable Knowledge Process was determined to be adequate in addressing the requirements of the WAP and the WAC as applicable, satisfactory in the implementation of these requirements and effective in achieving the desired results.

5.4.4 Table B6-4, Headspace Gas

The audit team reviewed AMWTP implementing procedures MP-TRUW-8.8, Rev. 29, *Level I Data Validation*; INST-OI-43, Rev. 18, *HGAS Sampling and Analysis Operations*; INST-OI-45, Rev. 12, *Drum Filter Installation*; and INST-OI-50, Rev. 10, *WMF-615 Filter Insertion Operations*, relative to HSG sampling activities, to determine the degree to which procedures adequately address upper-tier requirements.

The audit team evaluated AMWTP operations for HSG sampling and analysis using an automated online sampling and analytical system with gas chromatography/mass spectrometry (GC/MS) and gas chromatography/thermal conductivity detector (GC/TCD). HSG sampling and analysis operations were evaluated by observing sampling and analysis operations, examining equipment, interviewing personnel, and reviewing selected HSG BDRs. BDRs HS109-00016, HS110-00009, and HS110-00013 were examined and found satisfactory. Successful participation in the latest PDP Cycle 24A was verified, determination of method detection limits (MDLs), and performance

and accuracy (P&A) studies, laboratory logbooks, standard gas certifications, and the current WIPP-approved equipment were audited and found to be compliant. M&TE was audited and found to be acceptable. Training and qualification of sampling individuals were confirmed to be acceptable to the AMWTP training program and WAP requirements. No concerns were identified during the audit.

Overall, HSG sampling activities were determined to be adequate in addressing upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.4 Table B6-5, Radiography Checklist

The audit team evaluated the adequacy, implementation, and effectiveness of AMWTP characterization and certification of CH SCG S5000 debris waste and SCG S3000 solid waste using the RTR characterization process.

The audit team reviewed AMWTP procedures MP-TRUW-8.8, Rev. 29, *Level I Data Validation*; INST-OI-81, Rev. 6, *Real-Time Radiography Operations (for WIPP Certification of Boxes)*; and INST-OI-12, Rev. 44, *Real-Time Radiography Operations (Drum)*, to determine their adequacy in addressing upper-tier requirements. The results of the review determined that the procedures adequately address requirements.

Qualification cards were examined for six RTR operators, along with associated capability demonstration (test drum scans) audio/video media. The audit team determined that the training qualifications adequately addressed upper-tier requirements.

The audit team examined the following RTR BDRs from operations performed in Building WMF-634 to verify implementation and compliance with the requirements of INST-OI-81 and INST-OI-12:

RTR09-00163
RTR09-00052
RTR10-00002
RTR10-00025
RTR10-00048
RTR10-00083

The audit team reviewed associated audio/video recordings for multiple containers and noted that the audio quality on the RTR audio/video media were often almost inaudible (see section 7.2, Observation 1).

On Tuesday, August 24, 2010, the audit team observed RTR operations for container 10368079 using the Z-213-101 RTR Unit in Building WMF-634. The container was rejected for an impenetrable object and an NCR was written. The audit team verified RTR operations were performed to current procedures, interviewed the RTR operator

performing the scan, and examined the RTR Logbook for Z-213-101. An additional RTR unit Z-213-106, located in the same building, was also observed.

Overall, RTR activities were determined to be adequate in addressing upper-tier requirements, satisfactorily in the implementation of these requirements, and effective in achieving the desired results.

5.4.5 Table B6-6, Visual Examination

The audit team evaluated the adequacy, implementation, and effectiveness of AMWTP characterization and certification of CH SCG S5000 debris waste and SCG S3000 solid waste using the VE characterization process.

The audit team reviewed procedures MP-TRUW-8.8, Rev. 29, *Level I Data Validation*; INST-FOI-17, Rev. 19, *Facility Visual Examination Operations*; INST-OI-34, Rev. 22, *Non-Facility Visual Examination Operations*; INST-FOI-20, Rev. 30, *Supercompactor and Post-Compaction Operations*; and MP-RTQP-14.20, Rev. 8, *Training Implementation Matrix*, to determine their adequacy in addressing upper-tier requirements. The results of the review determined that the procedures adequately address requirements.

AMWTP uses the two-operator VE characterization method in which VE is performed by two qualified operators who examine the waste and place it into containers in the glovebox prior to compaction in the Supercompactor.

The audit team examined the following VE BDRs from operations performed in Building WMF-676 Boxline and Special Case Glovebox to verify implementation and compliance with the requirements for documenting VE activities as stipulated in INST-FOI-17:

VEB10-00440	VEB10-00616
VEB10-00150	VEB10-00138
VEB10-00790	VEB09-01313
VEB10-00811	VEC06-00013

On Tuesday, August 24, 2010, the audit team observed VE operations in the WMF-676 Boxline area for container 10043202, which then went to the Supercompactor. The audit team interviewed VE operators, VE Experts (VEEs), and examined the logbooks. VE operations were not being performed in the Special Case Glovebox at the time of the audit.

The audit team examined training records for five VE Operators and confirmed the appointment of four VEEs. The audit team determined that the training qualifications adequately addressed upper-tier requirements.

Overall, VE activities were determined to be adequate in addressing upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.4.6 Nondestructive Assay (NDA)

The audit team evaluated the continued adequacy, implementation, and effectiveness of the Z-390-100 and Z-390-101 NDA systems in Building WMF-676, and the Z-211-102 and Z-211-103 NDA systems in Building WMF-634 at the AMWTP. The Z-390-100 and Z-390-101 systems are capable of assaying waste in 55-gallon drums, while the Z-211-102 and Z-211-103 systems are capable of assaying waste in both 55- and 83/85-gallon drums. The audit team reviewed AMWTP procedures INST-OI-14, Rev. 25, *Drum Assay Operations*; INST-FOI-01, Rev. 19, *In-Plant Drum Assay Operations*; CI-IDA-NDA-0035, Rev. 3, *Calibration Verification & Confirmation Procedure for the Integrated Waste Assay System (IWAS) at AMWTP, Canberra Industries*; CI-IDA-NDA-0055, Rev. 3, *Total Measurement Uncertainty for the AMWTP Integrated Waste Assay Systems, Canberra Industries*; and RPT-TRUW-03, Rev. 7, *Drum Assay Technical Review Report*, to determine their adequacy in addressing upper-tier requirements. The results of the review determined that the procedures adequately address requirements.

The NDA systems are Canberra multi-mode hybrid systems that run on NDA 2000 and incorporate Canberra's Genie 2000, Multi-Group Analysis (MGA), as well as Multi-Group Analysis-Uranium (MGA-U), when sufficient quantities of uranium are detected. Each system consists of the following components:

- Two broad energy germanium (BEGe) gamma detectors mounted one over the other in the assay chamber wall, perpendicular to, and pointing toward the vertical axis of the drum;
- An array of 122 helium-3 (He-3) proportional tubes is arranged in a 4π geometry about the assay chamber. These tubes are divided into 16 detector banks currently only used in the passive neutron coincidence counting mode. These systems have the capability (both qualified and maintained) to assay in the active neutron differential die-away (DDA) mode. Active mode was not used for WIPP assay purposes in the year since the last audit;
- A Cf-252/Cs-137 Add-A-Source (AAS) correction source, mounted in a retractable housing external to the assay cavity, with an intensity of approximately 10^5 neutrons per second used, in part, for the determination of matrix correction factors (MCF); and
- A 14 MeV neutron generator with a capability of producing 10^8 14-MeV neutrons per second that can be used, along with cavity and barrel flux monitors and four Fast Neutron Detector Packs (FNDP), in the active neutron DDA mode.

These four NDA systems are not the only NDA systems used at the AMWTP, but they are currently the only four systems used to characterize waste for disposal at WIPP.

Based on a review of the current revisions of AMWTP procedures and reports provided prior to the audit, a checklist was prepared and used to evaluate:

- System stability as shown by the implementation and effectiveness of daily and weekly measurement controls and calibration verifications
- Applicability of each system's calibration and operational range to the matrix, geometry, and radionuclide content of waste assayed since Audit A-09-19
- Successful participation in the CBFO-sponsored NDA PDP Cycle 16A
- Completed BDRs to ensure data are reported and reviewed as required
- Data storage and retrievability
- Personnel qualification and training
- Continued operability and condition of the NDA systems since Audit A-09-19

The audit team interviewed AMWTP NDA personnel and operations staff, observed equipment and practices, and examined electronic and paper copies of records, including BDRs, control charts, NCRs, and work orders. No system recalibrations have been required or performed since Audit A-09-19 in August 2009, and the system performance checks have been performed as required. AMWTP successfully participated in PDP Cycle 16A for combustibles, glass, and metals waste matrices for all four systems.

Overall, NDA activities were determined to be adequate in addressing upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

6.0 CORRECTIVE ACTIONS, OBSERVATIONS, AND RECOMMENDATIONS

6.1 Corrective Action Reports

During the audit, the audit team may identify conditions adverse to quality (CAQs) and document such conditions on CARs.

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification,

compliance demonstration, or the effective implementation of the Quality Assurance (QA) program.

No CARs were issued during this audit.

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant using the following definitions:

CAQ – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Significant CAQ – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, compliance demonstration, or the effective implementation of the QA program.

Once a determination is made that the CAQ is not significant, the audit team member, in conjunction with the ATL, determines if the CAQ is an isolated case requiring only remedial action and therefore can be corrected during the audit. Upon determination that the CAQ is isolated, the audit team member, in conjunction with the ATL, evaluates/verifies any objective evidence/actions submitted or taken by the audited organization and determines if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL categorizes the condition as a CDA according to the definition below.

CDAs – Isolated deficiencies that do not require a root cause determination or actions to preclude recurrence. Correction of the deficiency can be verified prior to the end of the audit. Examples include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or not dated (isolated), and one or two individuals that have not completed a reading assignment.

Three conditions adverse to quality were identified and corrected during Audit A-10-24, as described below.

CDA-1

While reviewing work process documentation, the audit team noted that section 4.4, Drawing and Design Documentation, of Facility Modification Proposal FMP-1073 did not identify any drawing or other design documentation and was therefore correctly marked "N/A." The Design Lead/Project Lead making the determination marked "N/A" on the signature line instead of his printed name, signature and the date. Seven FMPs were reviewed; FMP-1073 was the only one lacking the signature. The condition was corrected and the audit team verified the correction had been completed prior to the end of the audit.

CDA-2

While performing project-level data V&V, the audit team noted that a proper error correction was not done on Form-1599, AMWTP Solid Sampling Checklist, for criteria 13a and 13b in BDR SSC10-00002. Seventeen BDRs were reviewed; BDR SSC10-00002 was the only one with a correction error. The condition was corrected and the audit team verified the correction had been completed prior to the end of the audit.

CDA-3

While performing project-level data V&V, the audit team noted that a response to question 53 on Form-1609, SPM Analysis of Homogenous Solids and Soils/Gravel Checklist, had no indication of Yes, No, or N/A in BDR ALD100155. Seventeen BDRs were reviewed; BDR ALD100155 was the only one that lacked a response to a question on Form-1609. The condition was corrected and the audit team verified corrections had been completed prior to the end of the audit.

7.0 SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

During the audit, the audit team may identify potential problems or suggestions for improvement that should be communicated to the audited organization. The audit team member, in conjunction with the ATL, evaluates these conditions and classifies them as Observations or Recommendations using the following definitions.

Observation – A condition that, if not controlled, could result in a CAQ.

Recommendations – Suggestions that are directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

Once a determination is made, the audit team member, in conjunction with the ATL, categorizes the condition appropriately.

7.1 Observations

The following Observation was identified during the audit.

Observation 1

After reviewing multiple RTR certification scans, the audit team noted that the audio on the RTR DVDs was often almost inaudible. In some cases, background noise can be heard, obscuring the identification of the container contents. If the audio portion of the DVD is inaudible, the contents of the waste container will not be identified as required in section 4.7 of INST-IO-12, Rev. 44, "The contents of the waste container will be described in sufficient detail on the audio/video record to provide an adequate inventory of the waste container contents in the audio/video record narrative," and section 4.7 of INST-IO-81, Rev. 6, "The contents of the waste container will be described in sufficient detail on the audio/video record to provide an adequate inventory of the waste container

contents in the audio/video record narrative.” This poor audio quality could result in a condition adverse to quality.

7.2 Recommendations

One Recommendation was provided to AMWTP management as a result of the audit.

Recommendation 1

It is recommended that the following changes be made in the next revision of AK Summary Document RPT-TRUW-77 for waste streams BN222 and RPT-TRUW-30 (or RPT-TRUW-83 as appropriate) for the supercompacted waste stream.

RPT-TRUW-77

- Section 1.6, page 10, revise the definition for prohibited liquids to be consistent with the language in the WAP.

RPT-TRUW-30

- Section 1.5, page 12, revise the definition for prohibited liquids to be consistent with the WAP language.
- Section 1.6.1, page 13, remove the repetitious language in paragraphs 1 and 2 regarding the source of the “bulk of the feed stock debris.” Change DO28 to D028 in paragraph 2. Remove or revise language about “heavily painted drums” in paragraph 1.
- Section 1.7, page 19, remove the last sentence of paragraph 1 regarding concentrations of Pu in excess of 20% by weight since it is no longer a criterion. Remove duplicative language in paragraphs 2 and 3 such as “the two most prevalent radionuclides expected....”

8.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit

Attachment 2: Summary Table of Audit Results

Attachment 3: Table of Audited Documents

Attachment 4: List of Processes and Equipment Reviewed

PERSONNEL CONTACTED DURING THE AUDIT

PERSONNEL CONTACTED DURING AUDIT A-10-24				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Carolyn Abbot	AMWTP/NWI AK SME		X	X
Scott Biorn	BBWI Production Manager		X	
Kathy Birch	BBWI RTR SME		X	
Todd Bischoff	BBWI Maintenance Supervisor		X	X
Sarah Bodily	BBWI Procurement Fleet Clerk		X	
Bob Bouchet	TRU Programs NDA System Engineer		X	
Keri Brashier	BBWI Procurement Specialist		X	
Gail Brown	BBWI Documents/Records Manager		X	X
Mike Brugger	BBWI VEE SME		X	X
Arron Buckskin	TRU Programs Shift Supervisor		X	
George Byram	BBWI SPM Lead		X	X
Steve Carpenter	BBWI AK Manager		X	X
Dale Cook	BBWI Database Administrator		X	
Elvin Dumas	BBWI QA Programs Manager	X	X	X
Jeff Duncan	TRU Programs NDA Operator		X	
Rob Eder	TRU Programs NDA ETR		X	
Tom Fallon	BBWI QA Manager	X		X
Denny Gasper	BBWI ITR Lead		X	X
Ronald Grise	BBWI Operations Technician		X	
Jeremy Hampton	BBWI Production Manager		X	
Rod Harrison	BBWI Procurement Manager	X	X	X
Ralph Hartline	BBWI Training Manager		X	

PERSONNEL CONTACTED DURING AUDIT A-10-24				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Jared Hawley	BBWI ICS Supervisor		X	
Sabin Hawley	BBWI M&TE Supervisor		X	
Jason Hayne	BBWI RTR SME		X	X
Steve Holmes	NMED Observer		X	X
Jeff Jensen	BBWI Engineer			X
Pete Johansen	Idaho DEQ Observer	X		X
Micky Johnson	BBWI AKE		X	
Mitch Johnson	BBWI HSG Operator		X	
Nancy Kirk	BBWI AKE		X	
Frank Kuck	BBWI Operations Technician		X	
Bruce LaRue	Idaho DEQ Observer			X
Denise Lee	BBWI RTR ITR		X	X
Kathy Leonard	CBFO NTP Observer	X		X
Austin Loftis	TRU Programs NDA Operator		X	
Robert Lyon	BBWI Software Administrator		X	
Ricardo Maestas	NMED Observer		X	
Dave Marquardt	BBWI Coring SPM		X	
Stormy McCurdy	BBWI WCO		X	
Dennis Miehl	CBFO QA Representative	X		
Robert Minton	BBWI Operations Technician		X	
William J. Muirhead	BBWI AMWTP Manager	X	X	X
Martin Navarrete	CBFO QA Representative	X		
Rebecca Newman	BBWI M&TE Custodian		X	
John Nicklas	BBWI HSGS Chemist		X	X
Dave Preston	BBWI VEE Lead SME		X	
Dot Reed	BBWI Training Records Coordinator		X	

PERSONNEL CONTACTED DURING AUDIT A-10-24				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST-AUDIT MEETING
Cesar Rojas	BBWI HSGS Chemist		X	X
Scott Raish	BBWI Deputy Project Manager			X
Eric Schweinsberg	BBWI SPM	X		X
James Seamans	TRU Programs NDA SME		X	
Jim Simmons	BBWI Acquisition Service Manager	X	X	X
Whitney St. Michel	BBWI TRAMPAC SME		X	
Matthew Storms	BBWI Certification Manager		X	X
Steve Tallmon	BBWI RTR SME		X	X
Gina Tedford	BBWI SPM Audit Lead	X	X	X
Alice Terramorse	BBWI Administrative Assistant			X
Travis Thompson	BBWI Production Planning SME		X	
Tana Tibbitts	BBWI WCO		X	
Ron Todd	BBWI System Engineer		X	
Kiki Torres	BBWI Waste Program Manager	X		X
Steve Turner	TRU Programs NDA System Engineer		X	
Adaire Vaughn	BBWI Operations Technician		X	
Trina Verges	BBWI QA Programs Manager		X	
Connie Walker	NMED Observer		X	
L. J. Walker	BBWI VEE		X	
Sherri Walker	BBWI Documents/Records Manager		X	X
Jerry Wells	DOE-ID Project Manager	X		X
Steven Yount	BBWI VEE		X	
Steve Zappe	NMED Observer		X	X

SUMMARY TABLE OF AUDIT RESULTS

QA/ Technical Elements	Concern Classification				QA Evaluation		Technical
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
Acceptable Knowledge				1	A	S	E
Reconciliation of DQOs/WSPFs					A	S	E
Project Level Data V & V		2			A	S	E
Real-time Radiography			1		A	S	E
HSG Sampling & Analysis					A	S	E
Solids Sampling & Analysis							
Container Management					A	S	E
Visual Examination					A	S	E
Nondestructive Assay					A	S	E
Training					A	S	E
Records/Documents					A	S	E
NCRs/CAs/Graded App. Org. QA Program					A	S	E
M&TE/Process Inst/Change Control		1			A	S	E
Software QA / WWIS					A	S	E
Procurement/Assessments/ Reports to Mgmt					A	S	E
TOTALS	0	3	1	1	A	S	E

Definitions

E = Effective

S = Satisfactory

I = Indeterminate

M = Marginal

U = Unsatisfactory

CAR = Corrective Action Report

CDA = Corrected During Audit

EP = Exemplary Practice

NE = Not Effective

Obs - Observation

Rec = Recommendation

A = Adequate

NA = Not Adequate

Table of Audited Documents

NUMBER	PROCEDURE NUMBER	TITLE
1.	CI-IDA-NDA-0035	Calibration Verification & Confirmation Procedure for the Integrated Waste Assay (IWAS) at AMWTP, Canberra Industries
2.	CI-IDA-NDA-0055	Total Measurement Uncertainty for the AMWTP Integrated Waste Assay Systems, Canberra Industries
3.	RTP-TRUW-03	Drum Assay Technical Review Report
4.	INST-CD&M-11.1.2	Facility Modification Proposal Preparation
5.	INST-CD&M-11.2.1	Software Version Control
6.	INST-CD&M-11.2.2	Software Inventory Classification
7.	INST-CD&M-11.2.3	System Data Change Requests
8.	INST-CMNT-10.14.1	Testing In-Plant and Process Instrumentation
9.	INST-CMNT-10.5.1	Calibration and Control of Measuring and Test Equipment
10.	INST-FOI-01	In-Plant Drum Assay Operations
11.	INST-FOI-17	Facility Visual Examination Operations
12.	INST-FOI-20	Supercompactor and Post-Compaction Operations
13.	INST-OI-09	Retrieval Enclosure Waste Container Extraction
14.	INST-OI-11	Waste Container Handling
15.	INST-OI-12	Real-Time Radiography Operations (Drum)
16.	INST-OI-14	Drum Assay Operations
17.	INST-OI-16	Drum Coring Operations
18.	INST-OI-34	Non-Facility Visual Examination Operations
19.	INST-OI-43	HGAS Sampling and Analysis Operations
20.	INST-OI-45	Drum Vent Filter Installation
21.	INST-OI-50	WMF-615 Filter Insertion Operations
22.	INST-OI-73	Manual Drum Coring
23.	INST-OI-75	Container-in-container Sampling
24.	INST-OI-81	Real-Time Radiography Operations (WIPP Certification of Boxes)
25.	INST-TRUW-8.1.1	Drum Assay Post Maintenance Calibration & Verification
26.	MP-CD&M-11.1	Change Control (Facility)
27.	MP-CD&M-11.2	Software Quality Assurance
28.	MP-CMNT-10.14	In-Plant and Process Instrumentation Testing Program
29.	MP-CMNT-10.5	Measuring and Test Equipment Program
30.	MP-DOCS-18.1	Developing Written Work Instructions
31.	MP-DOCS-18.2	Records Management
32.	MP-DOCS-18.3	Developing Management Procedures
33.	MP-DOCS-18.4	Document Control
34.	MP-M&IA-17.1	Management Assessment
35.	MP-M&IA-17.2	Independent Assessments
36.	MP-M&IA-17.3	Surveillance
37.	MP-PCMT-15.1	Acquisition of Materials and Services
38.	MP-PCMT-15.2.1	Materials Management
39.	MP-Q&SI-5.1	Investigation & Root Cause Analysis
40.	MP-Q&SI-5.3	Corrective Action
41.	MP-Q&SI-5.4	Identification of Nonconforming Conditions
42.	MP-Q&SI-5.6	Graded Approach
43.	MP-Q&SI-5.8	Qualifying Supply Chain Inspectors, Auditors, Lead Auditors and Technical Specialists
44.	MP-RTQP-14.16	Training Program Evaluation

NUMBER	PROCEDURE NUMBER	TITLE
45.	MP-RTQP-14.19	Training Records Administration
46.	MP-RTQP-14.20	Training Implementation Matrix (TIM)
47.	MP-RTQP-14.4	Personnel Qualification and Certification
48.	MP-RTQP-14.6	Job Analysis
49.	MP-TRUW-8.1	Certification Plan for INL Transuranic Waste
50.	MP-TRUW-8.2	Quality Assurance Project Plan (QAPjP)
51.	MP-TRUW-8.5	TRU Waste Certification (Includes OSM)
52.	MP-TRUW 8.8	Level I Data Validation
53.	MP-TRUW 8.9	Level II Data Validation
54.	MP-TRUW 8.11	Data Reconciliation
55.	MP-TRUW 8.12	Waste Receipt and Shipping Inspection
56.	MP-TRUW 8.13	Collection, Review, and Management of Acceptable Knowledge Documentation
57.	MP-TRUW 8.14	Preparation of Waste Stream Profile Forms
58.	MP-TRUW 8.17	Co-located Core Sampling Control Charts
59.	MP-TRUW 8.25	Random Selection of Containers for HSG and Solids Sampling and Analysis
60.	MP-TRUW 8.26	Reports to Management
61.	MP-TRUW 8.34	WIPP Sample Shipments

Process and Equipment Reviewed

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
NEW PROCESSES OR EQUIPMENT				
NONE				
PREVIOUSLY APPROVED PROCESSES OR EQUIPMENT				
The following processes and equipment were evaluated during CBFO Audit A-10-24				
Headspace Gas (HSG)				
9HG4	Procedure – INST-OI-43 Description – CTI Headspace Gas Sampling System – Unit 001	Solids (S3000) Debris (S5000)	YES	N/A
Solids Sampling				
9DC1	Drum Coring Procedures – INST-OI-16 and INST-OI-73 (<i>Manual Drum Coring Operation</i>) and INST-OI-75 Description – Drum Coring and Sample Collection System	Solids (S3000) Soils/Gravel (S4000)	YES	N/A
Nondestructive Assay (NDA)				
9DA1	Procedure – INST-OI-14 Description – Canberra Drum Assay System Z-211-102	Solids (S3000) Debris (S5000)	N/A	Yes
9DA2	Procedure – INST-OI-14 Description – Canberra Drum Assay System Z-211-103	Solids (S3000) Debris (S5000)	N/A	Yes
9DA3	Procedure – INST-FOI-01 Description – Canberra Drum Assay System Z-390-100	Debris (S5000)	N/A	Yes
9DA4	Procedure – INST-FOI-01 Description – Canberra Drum Assay System Z-390-101	Debris (S5000)	N/A	Yes

Process and Equipment Reviewed

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
Nondestructive Examination (NDE)				
9RR1	Procedure – INST-OI-12 and INST-OI-81 Description – Real-Time Radiography (RTR) System	Solids (S3000) Debris (S5000)	YES	YES
9RR2	Procedure – INST-OI-12 and INST-OI-81 Description – Real-Time Radiography System	Solids (S3000) Debris (S5000)	YES	YES
Visual Examination				
9VE2	Visual Examination Procedure – INST-OI-34 Description – Visual Examination (in lieu of RTR) (VEC)	Solids (S3000) Debris (S5000)	YES	YES
9VE3	Visual Examination Procedure – INST-OI-34 Description – Newly Generated Waste Visual Examination Closure (VNC)	Solids (S3000) Debris (S5000)	YES	YES
9VE5	Visual Examination Procedure – INST-FOI-17 Description – Visual Examination (in lieu of RTR) (VEC)	Debris (S5000)	YES	YES
9VE6	Visual Examination Procedure – INST-FOI-17 Description – Newly Generated Waste Visual Examination Closure (VNC)	Debris (S5000)	YES	YES

Process and Equipment Reviewed

WIPP #	Process/Equipment Description	Applicable to the Following Waste Streams/Groups of Waste Streams	Currently Approved by NMED	Currently Approved by EPA
9VE7	Visual Examination Procedure – INST-FOI-17 Description – Box Line Visual Examination (VEB) – Box to drum repackaging	Debris (S5000)	YES	YES
9VE8	Visual Examination Procedure – INST-FOI-17 Description – Box Line Visual Examination (VEB) – Drum to new drum repackaging	Debris (S5000)	YES	YES
9VE9	Visual Examination Procedure – INST-OI-34 Description – Box Line Visual Examination (VEB) – Box to drum repackaging	Solids (S3000) Debris (S5000)	YES	YES
9VE10	Visual Examination Procedure – INST-OI-34 Description – Box Line Visual Examination (VEB) – Drum to new drum repackaging	Solids (S3000) Debris (S5000)	YES	YES