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JAN 06 2016



Mr. Val Cannon, Manager
Quality Assurance
Nuclear Waste Partnership LLC
P.O. Box 2078
Carlsbad, NM 88221-2078

Subject: Carlsbad Field Office Audit Report A-16-04

Dear Mr. Cannon:

Carlsbad Field Office (CBFO) Audit A-16-04 was performed November 17-19, 2015, to evaluate Nuclear Waste Partnership LLC (NWP) Monitoring Programs. The details of the audit and conclusions of the audit team are contained in the enclosed audit report. One concern was identified and corrected during the audit, as described in the report.

The audit team concluded that overall, the activities evaluated are adequate, satisfactorily implemented, and effective in all areas, as documented in the audit report.

If you have any questions concerning the audit report, please contact me at (575) 234-7491.

Sincerely,

Dennis S. Miehl
Senior Quality Assurance Specialist

Enclosure

cc: w/enclosure

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U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

AUDIT REPORT

OF THE

NUCLEAR WASTE PARTNERSHIP LLC

MONITORING PROGRAMS

CARLSBAD, NEW MEXICO

AUDIT NUMBER A-16-04

November 17 – 19, 2015



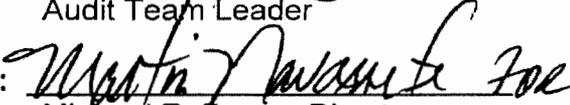
Prepared by:


Paul C. Gomez, CTAC
Audit Team Leader

Date:

01-05-2015

Approved by:


Michael R. Brown, Director
CBFO Office of Quality Assurance

Date:

01-06-15

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-16-04 was conducted to evaluate the continued adequacy, implementation, and effectiveness of the Nuclear Waste Partnership LLC (NWP) Monitoring Programs and applicable elements of the NWP Quality Assurance (QA) Program related to implementation of program procedures and monitoring program activities.

One condition adverse to quality was identified during the audit. The condition was determined to be isolated in nature and was resolved, verified, and classified as corrected during the audit (CDA). See section 6.2 for details. No observations were identified during the audit and no recommendations were offered for management consideration.

Overall, the audit team concluded that the NWP Monitoring Programs and implementing procedures evaluated, including the applicable QA program elements, are adequate in addressing upper-tier requirements. The audit team also concluded that the NWP procedures evaluated are satisfactorily implemented and effective in achieving the desired results for an environmental monitoring program.

2.0 SCOPE AND PURPOSE

2.1 Scope

The audit team evaluated the adequacy, implementation, and effectiveness of selected monitoring processes as they relate to the NWP QA Program. The following criteria were evaluated:

- Quality Assurance Program
 - Organization
 - QA Program
 - Training
 - Document Control
 - Records
- Volatile Organic Compound/Hydrogen/Methane Monitoring
- Delaware Basin Monitoring
- New Mexico Environment Department (NMED) Groundwater Discharge Permit DP-831
- Groundwater Monitoring
- Biota/Land Management Monitoring

The evaluation of the adequacy of the NWP Monitoring Program was based on compliance with current revisions of the following documents:

DOE/CBFO-94-1012, *Quality Assurance Program Document (CBFO QAPD)*
DOEWIPP 93-004, *WIPP Land Management Plan*
DOEWIPP-06-3339, *WIPP Groundwater Protection Program Plan*
DOEWIPP-99-2194, *WIPP Environmental Monitoring Plan*
WP 13-1, *NWP Quality Assurance Program Description*
Groundwater Discharge Permit DP-831
Related NWP technical and QA implementing procedures

2.2 Purpose

The purpose of the audit was to verify the flow-down of upper-tier requirements through the *NWP Quality Assurance Program Description (NWP QAPD)* into applicable NWP plans and procedures, and to determine if the plans and procedures were effectively implemented. The audit was conducted at the Waste Isolation Pilot Plant (WIPP) and the Carlsbad Environmental Monitoring and Research Center (CEMRC), November 17 – 19, 2015.

3.0 AUDIT TEAM AND OBSERVERS

Dennis S. Miehlis	CBFO QA Management Representative
Paul Gomez	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Vivien Hall	Auditor, CTAC
Robert Boyko	Auditor, CTAC
Tammy Ackman	Auditor, CTAC
B.J. Verret	Technical Specialist, CTAC

4.0 AUDIT PARTICIPANTS

Individuals contacted during the audit are identified in Attachment 1. A pre-audit conference was held in the WIPP site Support Building large conference room on November 17, 2015. The audit was concluded with a post-audit conference in the WIPP site Support Building large conference room on November 19, 2015.

5.0 AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

The audit team concluded that the NWP Monitoring Programs evaluated were adequate, satisfactorily implemented, and effective for the areas audited.

5.2 Quality Assurance Program Activities

NWP implementing procedures and associated plans evaluated during the audit are identified in Attachment 2. Attachment 3 is the Summary Table of Audit A-16-04 Results. Details of the audit interview and document review activities are contained in the following sections.

5.2.1 Organization

The audit team interviewed NWP Monitoring Program personnel and management personnel. The applicable section of the NWP QAPD, organizational charts, and other related documentation were reviewed to verify that an adequate organizational structure has been established to ensure the fulfillment of requirements for NWP QA and monitoring activities. As illustrated in the NWP organizational chart, the QA Manager reports directly to the NWP President and Project Manager, thus providing the necessary independence and authority to conduct independent assessments of monitoring program activities in order to verify the organization's achievement of quality and to assure effective implementation of the QA program. As illustrated in the URS Regulatory and Environmental Services (RES) organizational chart, there is adequate structure for implementation of environmental monitoring and hydrology monitoring and reporting activities.

The procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that applicable requirements for establishment of an organization are adequate for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2.2 Quality Assurance Program

The audit team reviewed NWP QAPD section 1.1, *Quality Assurance Program and Organization*, to verify that it appropriately translates and provides adequate measures for ensuring the establishment and effective implementation of a QA program, and complies with the CBFO QAPD. NWP documents, including WP 13-QA.04, *Quality Assurance Department Administrative Program*, and monitoring program implementing procedures and resulting records were examined to verify that the applicable QA program elements are sufficiently addressed for satisfactory implementation. The review covered personnel training and qualification, quality improvement, document and record control, work processes, procurements, monitoring, measuring, testing, and data collection equipment, independent assessment, and sample control.

To verify the performance of required independent assessments of monitoring program activities, the audit team interviewed responsible personnel and reviewed assessment reports related to the Monitoring Program. The results of the interviews and document reviews were positive and indicated that independent assessments are satisfactorily conducted and continue to achieve the desired results.

5.2.3 Training

The audit team interviewed responsible personnel and reviewed implementing procedure WP 14-TR.01, *WIPP Training Program*, relative to the training and qualification of personnel, to determine the degree to which the procedure adequately addresses upper-tier requirements. The team concluded that upper-tier requirements for personnel training and qualification are adequately addressed.

The audit team examined personnel training records associated with the Biota/Land Management Program, VOC/Hydrogen/Methane Monitoring Program, Groundwater Monitoring Program, DP-831 Salt Storage Evaporation Pond, and Delaware Basin Drilling Program to verify implementation of associated requirements and to verify that personnel (e.g., samplers, scientists, field staff, records coordinators, validators) performing these activities are appropriately qualified. The audit team reviewed qualification plans, qualification cards, exams, and required reading documentation for each position.

The procedures reviewed and objective evidence assembled and evaluated during the audit substantiate that the applicable requirements for training and qualification of personnel are adequate for compliance with the upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2.4 Document Control and Records

The audit team conducted interviews and reviewed implementing procedures relative to the control and administration of QA records to determine the degree to which the procedures adequately address CBFO QAPD requirements. The team reviewed procedures WP 15-RM, *WIPP Records Management Program*, and WP 15-RM3002, *Records Filing, Inventorying, Scheduling, and Dispositioning*, and concluded that upper-tier requirements are adequately addressed.

Storage and control of QA records was evaluated by observance of QA records stored in fire-rated cabinets in trailer 918B and in the Safety Building, 2nd floor.

The audit team also evaluated the following Records Inventory and Disposition Schedule (RIDS).

- RES/EM&H and SEC/General Records, dated April 29, 2015
- RES/RCRA Operating Record, dated July 7, 2015
- RES/SEC, dated October 20, 2015
- RES/Effluent Monitoring Program, dated May 27, 2015
- RES/EM&H/Groundwater Surveillance, dated October 20, 2015
- RES/EM&H/EM, dated May 21, 2015
- RES/EM&H/VOC HM Monitoring, dated July 6, 2015

Overall, The Quality Assurance Program Activities procedures reviewed and objective evidence assembled and evaluated during the audit substantiate that the applicable requirements for the control of documents and records are adequate for compliance with the upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.3 Monitoring Program Activities

5.3.1 Volatile Organic Compound/Hydrogen/Methane Monitoring

The audit team evaluated the adequacy, implementation, and effectiveness of NWP activities associated with the VOC/Hydrogen/Methane Monitoring Program and reporting at the WIPP, as related to the requirements of the Hazardous Waste Facility Permit, Part 4, and applicable portions of the NWP QA Program. Program areas evaluated during the audit included:

- VOC/Hydrogen/Methane monitoring operations resulting in sampling, laboratory analysis, data generation, validation, and reporting
- NWP control of certified laboratories and instrument maintenance subcontractors
- VOC/Hydrogen/Methane sampler and sample canister cleaning and certification, receipt, handling, and use
- Audits and assessments of the VOC/Hydrogen/Methane Monitoring Program

The audit team evaluated these activities by reviewing plans, implementing procedures, and objective evidence in accordance with checklists based on the applicable NWP implementing procedures. Results of the evaluations and objective evidence reviewed are documented on the checklists. Plans evaluated include:

- WP 12-VC.01, *Volatile Organic Compound Monitoring Plan*
- WP 12-VC.02, *Quality Assurance Project Plan for Volatile Organic Compound Monitoring*
- WP 12-VC.03, *Hydrogen and Methane Monitoring Plan*
- WP 12-VC.04, *Quality Assurance Project Plan for Hydrogen and Methane Monitoring*

Attachment 2 contains a list of implementing procedures and plans related to the VOC/Hydrogen/Methane Monitoring Program that were reviewed during the audit.

The NWP Monitoring Programs use a variety of controlled processes, including:

- Review and validation of laboratory data packages. For purposes of this audit, the team verified the results in batch data reports (BDRs) 020515-001, 031915-001, 043015-001, 0505715-001, and 070115-001.

- Calibration of measuring and test equipment, including the two gas chromatography/mass spectrometry (GC/MS) units at CEMRC, last calibrated October 12, 2015 using a 100 ppb and a 1ppm standard (001-028-178 and 001-028-176, resp.) expiring in 2016.
- Cleaning and certification of VOC canisters as verified in BDRs 020515-001-LC, 031915-001-LC, 043015-001-LC, 0505715-001-LC, and 070115-001-LC.
- Chain-of-custody forms, request for analysis forms, logbooks, inspection forms, and sampling data sheets, as verified in the BDRs.
- Quality control testing, as verified during the walk-through of the lab, resulting in lab duplicates, lab control standards, tuning standards, instrument check standards (I-005-224, I-005-227, and I-005-288-001, resp.), and blanks.
 - Internal Standards – Organic Chemistry (OC) Intermediate Standards Preparation Logbook
 - GC/MS Analysis Logbook 6890-5973 and 6890-5975
 - OC Primary Standards Certificate of Analysis Logbook
 - Certificate of Analysis 001-030-180 for Hydrogen and Methane dated 10-14-2015
 - Certificate of Analysis 001-028-178 for 100ppb VOCs dated 7-27-2015
 - Certificate of Analysis 001-028-177 for ISA dated 4-23-2015
 - Certificate of Analysis 001-028-176 for 1.0 ppm VOCs dated 2-26-2015
- Verification of QA data objectives for accuracy, precision, representativeness, comparability, and completeness. The BDRs provide all of the objectives to satisfy the programmatic requirements, and Minimum Detection Limits are evaluated annually. The lab reports the results to the WIPP site on electronic data deliverable.
- Independent assessments. The team verified the results of NWP QA Independent Assessment E14-04.
- Personnel qualification. The qualifications of the sample team and data reviewers were verified by the audit team at the WIPP site. Lab personnel qualifications are verified through the independent assessment process and the assessment number is listed on the Qualified Supplier List (QSL).

NWP laboratory subcontractors and maintenance subcontractors are subject to procurement controls, including evaluations and inclusion on the QSL. CEMRC is the NWP maintenance subcontractor for cleaning and certification of VOC canisters. The subcontractors were evaluated by NWP QA and are listed on the QSL. Data packages, analytical reports, and certifications provided by the laboratories are reviewed and validated by NWP personnel.

Results of the monitoring programs are reviewed and validated by NWP and then reported to CBFO and the NMED to fulfill permit requirements. The validation of the monitoring programs results follows WP 02-EM.02, *Integrated Sample Control Plan*.

NWP QA performed an independent assessment of the VOC/Hydrogen/Methane Monitoring Program in June 2014, and documented results in Independent Assessments Report E14-04.

The Underground Compliance and Underground Derived Waste Storage Plans address the February 2014 underground fire and radiation release events at the WIPP, stopping regulatory underground monitoring. NWP has continued to perform sub-atmospheric VOC sampling at surface locations approximating the horizontal locations where samples would be taken underground. This sampling method is being evaluated to determine its feasibility in lieu of collecting repository VOC monitoring samples.

The audit team identified no concerns related to the VOC/Hydrogen/Methane Monitoring Program. The procedures reviewed, including WP 12-VC1684, *VOC Monitoring Group – Air Sampling Equipment Operations*, WP 12-VC1685, *Subatmospheric and Pressurized Air Sampling in Passivated Canisters*, and WP 12-VC3209, *VOC Monitoring Group – Data Handling and Program Reporting*, and data packages evaluated during the audit demonstrated that the applicable requirements for VOC/Hydrogen/ Methane monitoring activities, data validation, as well as requirements for sample control, are adequately established for compliance with the upper-tier requirements and are satisfactorily implemented.

5.3.2 Delaware Basin Monitoring

Procedures WP 02-PC.02, *Delaware Basin Drilling Surveillance Plan*, and WP 02-EC3002, *Delaware Basin Drilling Database Upgrade Process*, provide adequate flow-down of NWP QAPD requirements related to Delaware Basin surveillance and record keeping. Interviews with the personnel performing work indicated sufficient knowledge of the procedures and familiarity with the associated job hazard analysis (JHA) requirements. Personnel performing sampling and data recording were verified to meet all the requirements of the Precautions & Limitations section of the procedures. Documentation associated with Delaware Basin monitoring and surveillance activities was complete, legible, and accurate. Reviews of the annual report (DOE/WIPP-15-2308) dated September 2015 and the quarterly report dated June 2015 indicate the reports were complete and accurately reflected data collected during the associated time periods.

The audit team identified no concerns related to the Delaware Basin Database Upgrade Process using ESRI ArcMap 10.0, AutoCad Light 2000, Xmap 8, and Manifold 8.0 as mapping software. The procedures reviewed and objective evidence evaluated during the audit substantiate that the applicable requirements for the Delaware Basin Drilling Database Upgrade Process are adequately established for compliance with the upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.3.3 NMED Groundwater Discharge Permit DP-831

The audit team evaluated the adequacy, implementation, and effectiveness of the WP 02-2, *WIPP Discharge Permit 831 Monitoring Plan*, by reviewing implementing procedures and examining resulting records. The procedure WP 02-EM1022, *Site Discharge Area Inspections*, provided adequate flow-down of NWP QAPD requirements related to site area discharge inspection and record keeping. Interviews with the personnel performing work indicated sufficient knowledge of the procedure and familiarity with the associated JHA requirements. Inspections were performed in accordance with the Precautions & Limitations section of the procedure. Personnel were properly trained and qualified to perform the tasks. Records for inspections dated October 8, 2015, were reviewed and found to be complete, legible, and accurate. Inspection discrepancies were appropriately logged as Action Requests with the maintenance department.

No concerns were identified during the audit related to the discharge permit management and reporting program. The procedure reviewed and objective evidence assembled and verified during the audit substantiate that the applicable requirements for NMED Groundwater Discharge Permit DP-831 management and reporting activities are adequately established for compliance with the upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.3.4 Groundwater Monitoring

No groundwater monitoring activities were performed during the time of the audit. The last groundwater monitoring assessment was conducted on October 29, 2015. The audit team evaluated the adequacy, implementation, and effectiveness of the WP 02-1, *WIPP Groundwater Monitoring Program Plan*, by reviewing implementing procedures and examining resulting records. The procedures WP 02-EM1014, *Groundwater Level Measurement*, WP 02-EM1026, *Water Level Data Handling and Reporting*, WP 02-EM1002, *Electric Submersible Pump Operation*, and WP 02-EC1003, *Low-Flow Groundwater Purging and Sampling*, were verified to provide adequate flow-down of NWP QAPD requirements related to processes for groundwater level measurement, reporting, and record keeping.

Interviews with the personnel performing work indicated sufficient knowledge of the procedures and familiarity with the associated JHA requirements. All applicable equipment was verified by the audit team to be in good condition and properly calibrated. Personnel performing equipment operation, sampling, measurement recording, field data transcription, and check printing validation were verified to be properly trained and qualified.

Records for the last groundwater measurement activities dated October 29, 2015, and well sampling activities dated June 26, 2015, were reviewed. Records were complete, legible, and accurate. Review of the Waste Isolation Pilot Plant Annual Site Environmental Report for 2014 (DOE/WIPP-15-8866), included all required information,

including any fluctuations of greater than two feet in Detection Monitoring Well elevations.

Fluid Density Measurements:

The procedure WP 02-EM1021, *Fluid Density Survey*, provided adequate flow-down of NWP QAPD requirements for fluid density measurement, reporting, and record keeping. Interviews with personnel performing the work indicated sufficient knowledge of the procedure and familiarity with the associated JHA requirements. All applicable equipment was verified by the audit team to be in good condition, properly stored, and calibrated. Personnel performing equipment operation, sampling, and measurement recording were verified to be properly trained and qualified. Records for fluid density measurements dated November 25, 2014 through December 2, 2014 were reviewed. Records were complete and legible.

One concern was noted during the review of completed documentation. Section 1.17 of WP 02-EM1021, *Fluid Density Survey*, requires stabilized pressure to be recorded to ± 0.001 psi. Contrary to this requirement, pressure recorded on all reviewed documents was to only ± 0.01 psi. The operator stated that a new instrument with sensitivity to only ± 0.01 psi was currently in use. The NWP Environmental Monitoring and Hydrology (EM&H) management provided a revised procedure with the correction prior to the closure of Audit A-16-04. The condition adverse to quality is considered to be corrected during the audit (see CDA-1, section 6.2).

Sewage Lagoon & Infiltration Sampling:

The procedure WP 02-EM1001, *Sewage Lagoon and Infiltration Controls Sampling*, provided adequate flow-down of NWP QAPD requirements related to sewage lagoon sampling and record keeping. Interviews with the personnel performing work indicated sufficient knowledge of the procedure and familiarity with the associated JHA requirements.

Personnel performing sampling and data recording were verified to meet all the requirements of the Precautions & Limitations section of the procedure. Personnel were properly trained and qualified, including all procedural prerequisites.

Records for sewage lagoon & infiltration sampling since the last audit were reviewed and found to be complete, legible, and accurate.

Overall, one concern corrected during the audit related to the Groundwater Monitoring Program was identified during the audit. The procedures reviewed and objective evidence assembled and evaluated substantiate that the applicable requirements for groundwater monitoring activities are adequately established for compliance with the upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.3.5 Biota/Land Management Monitoring

NWP operations for Biota/Land Management were evaluated for adequacy,

implementation, and effectiveness of the activities associated with sampling of biota, vegetation, surface water, sediment, and soil. The audit team also evaluated EM&H field work and the implementation of the Land Use Request.

The audit team evaluated the verification and validation of sampling results by reviewing NWP implementing procedures and objective evidence. The team verified results of sampling activities in accordance with the *Integrated Sample Control Plan* (WP 02-EM.02), including sample receipt, storage, and reporting by the WIPP Laboratories. No field sampling activities were being performed during this audit.

The following sampling data files, Chain of Custody (C of C) forms, Request for Analysis forms, and radiological data verification and validation data checklists were examined:

- 2015 Soil Sampling Data Sheets for sampling events 001, 003, 004 and 007
- 2015 Biotic Tissue Sample Data Sheets, C of C forms, and Request for Analysis forms for sampling events 001, 003, 005, 010, 011 and 013
- 2015 Surface Water/Sediment Sample Data Sheets, C of C forms, and Request for Analysis forms for sampling events 001, 002, 011, 016 and 017
- 2015 Vegetation Sample Data Sheets, C of C forms, and Request for Analysis forms for sampling events 001, 004, 005 and 007
- Documentation for EM&H Field Work and Implementation of the Land Use Request for 2015.
- Radiological Data Verification and Validation Documentation for 2015
 - Radiological Data Verification and Validation checklists for 2015
 - WIPP Annual Site Environmental Report (ASER) for 2014

The sampling protocols for soil, vegetation, surface water, and sediment were found to be adequate and the audit team verified that associated data files were reviewed by an independent reviewer. Biota (fish, quail, deer, and rabbit) samples were properly preserved prior to submitting the samples to the WIPP Laboratories for analysis. Measuring and testing equipment (M&TE) certifications were reviewed and found to be acceptable. Radiological data verification and validation were found to be adequate and the WIPP ASER for 2014 had been completed and issued. The audit team also verified that field activities and authorization processes for preserving and maintaining the land within the WIPP Land Withdrawal Area, excluding the Property Protection Area, had been conducted and the required records were completed and properly maintained. Training and qualification of sampling individuals, EM&H field work personnel, and radiological data verification and validation personnel were confirmed to meet requirements for the NWP Monitoring Program. No concerns were identified.

The audit team reviewed procedures WP 02-EM1011, *Biotic Sampling*, WP 02-EM1009, *Soil Sampling*, WP 02-EM1017, *Surface Water and Sediment Sampling*, WP 02-EM1019, *Vegetation Sampling*, WP 02-EM1024, *EM&H Field Work and Implementation of the Land Use Request*, WP 02-EM1027, *Construction of the Potentiometric Surface Map for the Annual Site Environmental Report and Shallow Subsurface Water*, and WP 02-EM3001, *Administrative Processes for Environmental Monitoring and Hydrology*

Programs. The procedures and the objective evidence assembled and evaluated during the audit provide verification that the applicable requirements for Biota/Land Management activities, as well as requirements for sample control, are adequately established for compliance with the upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

NWP Site Effluent and Hazardous Materials Sampling:

Hazardous materials sampling activities were not performed during the time of the audit. NWP operations for the WP 02-EC.06, *WIPP Site Effluent and Hazardous Materials Sampling Plan*, activities were evaluated for adequacy, implementation, and effectiveness.

The audit team conducted personnel interviews and review of the 2015 WIPP Sampling Team Logbook H17. The team verified that the hazardous, radioactive, and mixed waste characterization sampling team consisted of at least two sampling personnel. Training for personnel performing these activities was verified to be current. Sampling tools are kept in a locked room. Field measurements were not conducted; all samples were transported to GEL Laboratory for analysis. Chain of Custody and Request for Analysis forms were satisfactory and completed in accordance with the requirements of WP 02-EM1010, *Field Parameter Measurements and Final Sample Collection*.

No concerns related to the Site Effluent and Hazardous Materials Sampling activities were identified during the audit. The sampling plan reviewed and objective evidence assembled and evaluated during the audit provide verification that the applicable requirements for the sampling activities are adequately established for compliance with the upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

NWP Airborne Particulate Sampling:

NWP Operations' Airborne Particulate Sampling activities were evaluated for adequacy, implementation, and effectiveness.

The audit team evaluated the verification and validation of airborne sampling by reviewing NWP implementing procedure WP 02-EM1012, *Airborne Particulate Sampling*, and objective evidence, and through field observation of airborne particulate filter sampling at station Southeast Control EE and AL.

The audit team reviewed sampling files from 2015 Lo-Vols, 2nd Quarter AL. The team verified that an aborted sample from 6/3/15 was properly handled per the procedure. Additional sampling files from 5/13/15 and 6/10/15 were evaluated and found to be compliant.

Training for personnel performing sampling and filter change-out activities was verified to be current.

The sampling protocols for airborne particulates were found to be adequate and the audit team verified that associated data files were reviewed by an independent

reviewer. M&TE certifications were reviewed and found to be current and acceptable.

No concerns related to the Airborne Particulate Sampling activities were identified during the audit.

The procedure reviewed, and objective evidence assembled and evaluated during the audit provide verification that the applicable requirements for Airborne Particulate Sampling activities are adequately established for compliance with the upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

Detection Monitoring Program:

No field parameter measurements and final sample collection on any of the detection monitoring wells for the Detection Monitoring Program (DMP) were performed during the time of the audit. The audit team evaluated the NWP operations for the DMP for adequacy, implementation, and effectiveness by reviewing NWP implementing procedures and objective evidence.

Water Quality Sampling Package (WQSP)-1 Round 37 was reviewed and found to be complete. Sampler purging, in accordance with the procedure, was verified and recorded in the WQSP-1 Round 37 Sampling Package. All monitoring and data collection equipment for this activity was determined to be properly maintained and calibrated prior to use. M&TE certifications were reviewed and found to be current and acceptable.

The groundwater sample collection protocols were found to be adequate. C of C/Request for Analysis forms were satisfactory. All attachments required for inclusion in the sampling package were completed properly and reviewed per the requirements of the procedures.

Training for personnel performing the field measurements and sample collection for the DMP was verified to be current.

No concerns related to the DMP activities were identified during the audit. The procedures reviewed, including WP 02-EM3003, *Data Verification and Validation of RCRA Constituents*, and WP 02-EM3004, *Radiological Data Verification and Validation*, and objective evidence assembled and evaluated during the audit provided verification that the applicable requirements for the DMP activities are adequately established for compliance with the upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

Overall, the Monitoring Program Activities procedures reviewed and objective evidence assembled and evaluated during the audit substantiate that the applicable requirements for the control of documents and records, management, sampling and monitoring, and recording are adequate for compliance with the 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) in accordance with the definitions below and document such conditions on corrective action reports (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 as a result of evaluations performed during Audit A-16-04.

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.

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 (CDA). 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.

One deficiency was identified and corrected during the audit, as described below.

CDA-1

The audit team identified that WP 02-EM1021, Rev. 9, *Fluid Density Survey*, requires stabilization of test pressures to be recorded to ± 0.001 psi and that pressures are actually being recorded to ± 0.01 psi. The audit team determined that a new instrument

with sensitivity to only ± 0.01 psi was currently in use and that stabilized pressures cannot be recorded in accordance with procedure. This concern was discussed with the EM&H Manager, and the affected procedure steps were corrected to include the new equipment capability. The procedure originator revised the procedure and the revision was verified by the audit team. The concern was classified as CDA.

6.3 Observations

During the audit, the audit team may identify potential problems that should be communicated to the audited organization. The audit team members, in conjunction with the ATL, evaluate these conditions and classifies them as Observations using the following definition:

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

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

No Observations were identified during the audit.

6.4 Recommendations

During the audit, the audit team may identify suggestions for improvement that should be communicated to the audited organization. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Recommendations using the following definition:

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.

No Recommendations were provided to management during the audit.

7.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During Audit A-16-04
- Attachment 2: NWP Documents Evaluated During Audit A-16-04
- Attachment 3: Summary Table of Audit A-16-04 Results

PERSONNEL CONTACTED DURING AUDIT A-16-04				
NAME	ORGANIZATION / DEPARTMENT	PREAUDIT MEETING	CONTACTED DURING AUDIT	POSTAUDIT MEETING
Mansour Akbarzede	WIPP Labs Manager		X	
Bill Allen	NWP/QA	X		X
Mel Baldarama	RES/EM&H	X	X	X
Wesley Boatwright	RES/EM&H	X	X	X
Stephanie Brotton	NWP/QA	X		X
John Calicoat	RES/Delaware Basin	X	X	
Val Cannon	NWP /QA	X		X
Jeff Casey	RES/SEC	X		
Francine Cohen	RES/SEC		X	
Rick Eggleston	RES/EM&H		X	
David Ganaway	RES/EM&H	X	X	X
Christine Gomez	WIPP Labs QA		X	
Richard Jimenez	RES/EM&H	X	X	X
Stewart Jones	NWP/RES/SEC	X		
Greg Jungclaus	RES/EM&H	X	X	X
Tom Lichty	NWP Training		X	
Josh Litt	RES/EM&H	X		
Jimmy Neatherlin	NWP/SEC		X	
Esteban Picazo	RES/EM&H	X		X
Sheri Punchios	NWP/QA	X	X	X
Rick Salness	RES/EM&H	X	X	X
Brett Seal	EM&H	X		
Katrina Valdez	RES/SEC	X	X	
Rob Watson	RES/ECP	X	X	

NWP Documents Evaluated During Audit A-16-04		
Number	Doc Number	Applicable NWP Document - Description / Title
1	WP 02-1, Rev. 12	WIPP Groundwater Monitoring Program Plan
2	WP 02-2, Rev. 2	WIPP Discharge Permit 831 Monitoring Plan
3	WP 02-EC.06, Rev. 11	WIPP Site Effluent and Hazardous Materials Sampling Plan
4	WP 02-EC1003, Rev. 7	Low-Flow Groundwater Purging and Sampling
5	WP 02-EC3002, Rev. 7	Delaware Basin Drilling Database Upgrade Process
6	WP 02-EM.02, Rev. 4	Integrated Sample Control Plan
7	WP 02-EM1001, Rev. 17	Sewage Lagoon and Infiltration Controls Sampling
8	WP 02-EM1002, Rev. 6	Electric Submersible Pump Operation
9	WP 02-EM1009, Rev. 7	Soil Sampling
10	WP 02-EM1010, Rev. 2	Field Parameter Measurements and Final Sample Collection
11	WP 02-EM1011, Rev. 7	Biotic Sampling
12	WP 02-EM1012, Rev. 17	Airborne Particulate Sampling
13	WP 02-EM1014, Rev. 7	Groundwater Level Measurement
14	WP 02-EM1017, Rev. 8	Surface Water and Sediment Sampling
15	WP 02-EM1019, Rev. 7	Vegetation Sampling
16	WP 02-EM1021, Rev. 9	Fluid Density Survey
17	WP 02-EM1022, Rev. 9	Site Discharge Area Inspections
18	WP 02-EM1024, Rev. 7	EM&H Field Work and Implementation of the Land Use Request
19	WP 02-EM1027, Rev. 2	Construction of the Potentiometric Surface Map for the Annual Site Environmental Report and Shallow Subsurface Water
20	WP 02-EM1026, Rev. 6	Water Level Data Handling and Reporting
21	WP 02-EM3001, Rev. 23	Administrative Processes for Environmental Monitoring and Hydrology Programs
22	WP 02-EM3003, Rev. 11	Data Verification and Validation of RCRA Constituents
23	WP 02-EM3004, Rev. 9	Radiological Data Verification and Validation
24	WP 02-PC.02, Rev. 6	Delaware Basin Drilling Surveillance Plan
25	WP 02-PC.03, Rev. 8	WIPP Hazardous Waste Facility Permit Reporting and Notifications Compliance Plan

NWP Documents Evaluated During Audit A-16-04		
Number	Doc Number	Applicable NWP Document - Description / Title
26	WP 12-VC.01, Rev. 11	Volatile Organic Compound Monitoring Plan
27	WP 12-VC.02, Rev. 13	Quality Assurance Project Plan for VOC Monitoring
28	WP 12-VC.03, Rev. 2	Hydrogen and Methane Monitoring Plan
29	WP 12-VC.04, Rev. 3	Quality Assurance Project Plan for Hydrogen and Methane Monitoring
30	WP 12-VC1684, Rev. 10	VOC Monitoring Group – Air Sampling Equipment Operations
31	WP 12-VC1685, Rev. 8	Subatmospheric and Pressurized Air Sampling in Passivated Canisters
32	WP 12-VC3209, Rev. 17	VOC Monitoring Group – Data Handling and Program Reporting
33	WP 13-1, Rev. 35	NWP Quality Assurance Program Description
34	WP 13-QA.04, Rev. 21	Quality Assurance Department Administrative Program
35	WP 14-TR.01, Rev. 15	WIPP Training Program
36	WP 15-RM, Rev. 8	WIPP Records Management Program
37	WP 15-RM3002, Rev. 8	Records Filing, Inventorying, Scheduling, and Dispositioning

Summary Table of Audit A-16-04 Results

Audit Elements	Concern Classification				QA Evaluation		
	CARs	CDAs	Obs	Rec	Adequacy	Implementation	Effectiveness
Training Records & RIDS					A	S	E
Biota/Land Management Program					A	S	E
Sampling		1			A	S	E
VOC, H2, Me, and Air Sampling					A	S	E
Groundwater and Discharge Permit					A	S	E
TOTALS	0	1	0	0	A	S	E

Definitions

CDA = Corrected During Audit
A = Adequate

CAR = Corrective Action Report
S = Satisfactory

Rec = Recommendation
E = Effective

Obs = Observation
M = Marginal