



Department of Energy
Carlsbad Field Office
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Carlsbad, New Mexico 88221
APR 04 2017



Ms. Mary McDaniel, Manager
Quality and Contractor Assurance
Nuclear Waste Partnership LLC
P.O. Box 2078
Carlsbad, NM 88221-2078

Subject: Carlsbad Field Office Audit Report A-17-05

Dear Ms. McDaniel:

Carlsbad Field Office Audit A-17-05 was performed January 24 - 26, 2017 to evaluate the Nuclear Waste Partnership LLC (NWP) Industrial Safety Air Quality Monitoring Program. The details of the audit and conclusions from the audit team are contained in the enclosed audit report. Five concerns were identified during the audit as described in the report.

One condition adverse to quality (CAQ) was verified corrected during the audit and the remaining four CAQs resulted in issuance of Corrective Action Reports which have been transmitted under separate cover.

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

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

Sincerely,

[Handwritten signature of Martin P. Navarrete]

Martin P. Navarrete
Senior Quality Assurance Specialist

Enclosure

cc: w/enclosure

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*ED denotes electronic distribution



1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-17-05 was conducted January 24 - 26, 2017, at the Waste Isolation Pilot Plant (WIPP) to evaluate the adequacy, implementation, and effectiveness of the Nuclear Waste Partnership LLC (NWP) Industrial Safety Air Quality Monitoring Program for compliance to requirements defined in DOE/CBFO-94-1012, *CBFO Quality Assurance Program Document (QAPD)*, and WP 13-1, *NWP Quality Assurance Program Description*.

Based on the results of the evaluation the audit team concluded that, overall, the NWP Industrial Safety Air Quality Monitoring Program adequately addresses the applicable upper-tier requirements, is satisfactorily implemented, and is effective.

The audit team identified five conditions adverse to quality (CAQs) during the audit, necessitating the initiation of four Corrective Action Reports (CARs). Two CAQs were identified in the area of Software, the first concerning the database not meeting the exemptions listed in procedure WP 16-2, *Software Screening and Control*, and not being supported by the Information Resource Management group per WP 16-IT1003, *Acquisition of Hardware and Software* (see CAR 17-012), and the second pertaining to current update of the access list for the WIPP Industrial Hygiene (IH) Sampling Database. This second CAQ was corrected during the audit (CDA) (see CDA 1). Two CAQs were related to Document Control, the first associated with forms used (Field Notes) for personal and area sampling not being maintained to identify the current/revision of controlled documents and forms (see CAR 17-013), and the second involving several procedures not being reviewed for adequacy, correctness, and completeness prior to approval and issuance (see CAR 17-014). The remaining CAQ is related to failure to exhibit Mine Safety and Health Administration/National Institute for Occupational Safety and Health (MSHA/NIOSH) labels or logos on sampling pumps (see CAR 17-015).

No Observations were reported, and no Recommendations were offered for management consideration.

2.0 SCOPE

Audit A-17-05 was conducted to verify the adequacy, implementation, and effectiveness of the WIPP Industrial Safety Air Quality Monitoring Program in accordance with requirements of the CBFO QAPD. Other areas of particular focus included methods for monitoring and testing air in the WIPP underground in accordance with the MSHA and Hazardous Waste Facility Permit requirements for functional check of air quality instrumentation.

The audit evaluated NWP procedures (listed in Attachment 2) established for implementing the following areas:

- Calibration
- Documents
- Records

NWP implementing procedures evaluated during the audit are identified in Attachment 2. Attachment 3 provides a summary of the audit results. Details of the audit are presented in the following sections.

5.2 Industrial Safety Air Quality Program Audit Details

5.2.1 Calibration

The audit team reviewed NWP procedures with respect to requirements of DOE/CBFO-94-1012, Rev. 12, Section 2.4.7, *Calibration*. The audit team evaluated the adequacy of the following NWP procedures:

- WP 12-IH1006, Rev. 5, *Airborne Contaminant Sampling*
- WP 12-IH1007, Rev. 4, *Personal Sampling Pump Calibration*
- WP 12-IH1008, Rev. 0, *Indoor Air Quality Evaluations and Responses*
- WP 12-IH1022, Rev. 12, *Sampling for Waste Generated VOCs*
- WP 12-IH1828, Rev. 9, *MSHA Air Quality Monitoring*
- WP 04-AU0534, Rev. 5-FR1, *Underground Access Initiation/Termination*

The calibration of field devices for the Industrial Safety Air Quality Monitoring Program is described in the audited implementing procedures. It was verified that devices requiring calibration are set at periodic intervals to ensure the measuring and test equipment remains in tolerance. Further, the team found that calibrations are documented and field equipment is either labeled or traceable to a log or database. All gases are calibrated to recognized standards by offsite vendors. No equipment was found to be out of calibration by the audit team.

No concerns related to calibration were identified by the audit team.

The audit team concluded that the requirements for the calibration process were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2.2 Documents

The audit team reviewed NWP procedures with respect to requirements of DOE/CBFO-94-1012, Rev. 12, Section 1.4, *Documents*. The audit team evaluated the adequacy of the following NWP procedures:

- WP 12-IH.02, Rev. 13, *WIPP Industrial Hygiene Program Manual*
- WP 12-IH.02-18, Rev. 1, *Industrial Hygiene Program-Indoor Air Quality*
- WP 12-IH1006, Rev. 5, *Airborne Contaminant Sampling*
- WP 12-IH1007, Rev. 4, *Personal Sampling Pump Calibration*
- WP 12-IH1008, Rev. 0, *Indoor Air Quality Evaluations and Responses*
- WP 12-IH1022, Rev. 12, *Sampling for Waste Generated VOCs*

5.2.3 Records

The audit team reviewed NWP procedures with respect to requirements of DOE/CBFO-94-1012, Rev. 12, Section 1.5, *Records*. The audit team evaluated the adequacy of the following NWP procedures:

- WP 12-IH.02, Rev. 13, *WIPP Industrial Hygiene Program Manual*
- WP 12-IH.02-18, Rev. 1, *Industrial Hygiene Program-Indoor Air Quality*
- WP 12-IH1006, Rev. 5, *Airborne Contaminant Sampling*
- WP 12-IH1007, Rev. 4, *Personal Sampling Pump Calibration*
- WP 12-IH1008, Rev. 0, *Indoor Air Quality Evaluations and Responses*
- WP 12-IH1022, Rev. 12, *Sampling for Waste Generated VOCs*
- WP 12-IH1828, Rev. 9, *MSHA Air Quality Monitoring*
- WP 04-AU0534, Rev. 5-FR1, *Underground Access Initiation/Termination*

All audited quality assurance records were legible, accurate, completed, controlled, and maintained in accordance with the Industrial Safety Air Quality Monitoring Program implementing procedures. Records were generated, classified, stored, and dispositioned in accordance with the audited departmental Records Inventory and Disposition Schedules (RIDS).

No concerns were identified by the audit team related to records.

The audit team concluded that the requirements for the records process were adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2.4 Software

The audit team reviewed NWP procedures with respect to requirements of DOE/CBFO-94-1012, Rev. 12, Section 6.0, *Software Requirements*. The audit team evaluated the adequacy of the following NWP procedures:

- WP 12-IH1006, Rev. 5, *Airborne Contaminant Sampling*
- WP 12-IH1007, Rev. 4, *Personal Sampling Pump Calibration*
- WP 12-IH1022, Rev. 12, *Sampling for Waste Generated VOCs*
- WP 12-IH1828, Rev. 9, *MSHA Air Quality Monitoring*
- WP 04-AU0534, Rev. 5-FR1, *Underground Access Initiation/Termination*

The audit team reviewed the IS/IH Sampling Database which is described in the IS/IH procedures as being used to track sampling and generate sampling reports. The software was screened per WP 16-2, *Software Screening and Control*, as non-controlled software and exempt from the requirements of section 6.0 of the CBFO QAPD.

Two concerns were identified by the audit team related to software:

5.2.6 Indoor Air Quality

WP 12-IH.02-18, Rev. 1, Industrial Hygiene Program-Indoor Air Quality **WP 12-IH1008, Rev. 0, Indoor Air Quality Evaluations and Responses**

The audit team reviewed procedures WP 12-IH.02-18 and WP 12-IH1008, which are designed to ensure that WIPP employees are not exposed to potential air quality induced harm or discomfort inside buildings at the WIPP site or at other WIPP-related facilities. Indoor air quality (IAQ) concerns are to be reported by WIPP employees and it is the responsibility of the IS/IH professional to conduct or oversee the IAQ investigations. The assessment is performed by trained industrial hygienists. The audit team verified that five industrial hygienists are adequately trained to perform this evaluation, and they are qualified to use the Minirae Model 3000 Photoionization Detector (PID). One industrial hygienist is trained and qualified to use the MX6 Ibrid Mutli-gas Monitor. Industrial hygienist training included practical review of equipment capability and functions. The audit team noted the procedures and trained individuals are in place for achieving an effective result if this process is needed.

There have been no employee concerns for exposed to potential air quality inducing harm or discomfort inside buildings reported to date pertaining to IAQ. The IAQ process is adequately established for compliance with upper-tier requirements, but since no evidence of implementation of this process is available at this time, the implementation and effectiveness is indeterminate.

5.2.7 Underground

WP 04-AU0534, Rev. 5-FR1, Underground Access Initiation/Termination **WP 12-IH1828, Rev. 9, MSHA Air Quality Monitoring**

Procedures WP 04-AU0534 and WP 12-IH1828 were walked down with the Underground Facilities Engineer (UFE) and Roving Watch personnel in the WIPP underground. The audit team accompanied the initial entry team into the mine, including the UFE, Roving Watch, and RadCon personnel. The two UFEs and the Roving Watch personnel were asked a series of questions concerning the procedure sections including:

- Introduction
- Responsibilities
- References
- Equipment List
- Precautions and Limitations
- Prerequisites
- Performance

UFEs and Roving Watch personnel understood their responsibilities described in the procedures and knew what records were generated by performance of the procedures. UFE and Roving Watch personnel possessed knowledge of sample baseline documents. UFE and Roving Watch personnel understood that if they do not understand the reference

The audit team determined that the applicable requirements for this procedure are adequately established for compliance with upper-tier requirements; however, procedure implementation was deemed unsatisfactory with regard to documentation during the use of this procedure.

WP 12-IH1007, Rev. 4, Personal Sampling Pump Calibration

A procedural walk-down as well as a mock-up of personal sampling pump usage was performed by the IH field technicians. In addition, the audit team met with the IH field technicians in the laboratory in the morning to watch the distribution of PID monitoring equipment. Two IH field technicians and the industrial hygienist were asked a series of questions concerning the procedure sections, including:

- Introduction
- References
- Precautions and Limitations
- Prerequisite Actions
- Performance
- Attachments

Industrial Hygiene personnel showed basic knowledge of a sample of baseline documents. Industrial Hygiene personnel recognize that if reference documents are not understood, a supervisor can assist them, or the document can be viewed via computer. Knowledge of the equipment precautions and limitations were exhibited by way of a walk-down of the procedure with IH personnel. Prerequisite actions and performance was also demonstrated by a walk-down of this procedure.

The Introduction section of the procedure states: "no records are generated by the performance of this procedure." Contrary to this statement, in steps 5.1.7 and 5.1.8 this procedure states: "OPEN IH Sampling Database and CREATE new record" (see CAR 17-014).

Some steps in the procedure are being performed out of sequence or not at all. For example, sections 5.1.7 and 5.1.8 require opening the IH Sampling Database before moving on to the calibration, but this is not occurring until the calibration is completed. Further, pumps not used the next day are to remain on in order to drain the battery. This is not occurring either according to field technicians. During the calibration of the sampling pumps, field notes are documented on an uncontrolled word document then delivered to the Senior Scientist (also the IS/IH Database Administrator) to be entered in the database later. This process is not part of the procedure.

The Gillian sampling pumps sent into the mine for sampling of individuals exhibit no MSHA/NIOSH labels or logos. This is an issue of non-compliance as procedure step 4.2, *Equipment List*, states: "Pumps must have NIOSH or MSHA approval for the type of sampling." In relation to the labels/logos, IH personnel were asked to provide the audit team with a list of approved equipment per MSHA/NIOSH used at the facility. Industrial Hygiene personnel could not provide a list, nor confirm a list existed (see CAR 17-015).

NOTE: This portion is performed by more than one field technician and there is a "Checked in By" line that requires a signature. The field technician from the previous day had downloaded the information, but had not yet signed the form. The other field technician in the lab asked if information was downloaded, and if the PID was in the lab. The field technician answered "Yes," and the other field technician then signed the form. This is not a best practice as the person responsible for downloading and checking in the PID should sign the form. The other field technician was unable to check to see if the PID, which is numbered, was present on the cart before signing the document.

NOTE: A good practice was observed during the audit and walk down of the procedure. The IH personnel keep a list of qualified individuals in the laboratory to reference during the checkout of PIDs. If an employee does not come in every day to check out a PID, the IH personnel will look at the list for closest qualified date, or call Technical Training to verify the employee is still qualified to use the PID. During the audit, an employee came in to take a PID and said they had taken the online version qualifying them to take the PID. The IH field technician could not find the employee's name on the list and tried contacting the Technical Training department to verify the employee's training. After an extended wait, the IH field technician was able to verify that the employee had not yet received the training and was not qualified to take or use the PID.

With the exception of the concern identified, the procedures reviewed and objective evidence assembled and evaluated during the audit provided evidence that the applicable requirements for Sampling for Waste Generated VOCs activities are adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

6.0 SUMMARY OF DEFICIENCIES

6.1 Corrective Action Reports (CARs)

During the audit, the audit team may identify CAQs and document such conditions on CARs. CAQs are defined as follows:

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 QA Program.

As described below, the audit team identified five CAQs during Audit A-17-05, which resulted in the issuance of four CARs.

- WP 12-IH1006 and WP 12-IH1007 state that personnel performing work will be designated by the IS/IH Manager; however, personnel are qualified to perform work through the WIPP training and qualification program.

WP 13-1, *Nuclear Waste Partnership LLC Quality Assurance Program Description*, Rev. 36, section 1.4.1, states: "Documents that specify or prescribe work shall be reviewed for adequacy, correctness, and completeness prior to approval and issuance as controlled documents. Management shall identify the individuals or organizations responsible for the preparation, review, approval, and issuance of controlled documents. This is to ensure that documents are accurate, adequate and approved."

CAR 17-015

The Gillian sampling pumps used for personal sampling in the WIPP underground do not exhibit MSHA/NIOSH labels or logos.

WP 12-IH1007, *Personal Sampling Pump Calibration*, Rev. 4, section 4.2, Equipment List: Personal sampling pumps, states: "Pumps must have NIOSH or Mine Safety and Health Administration (MSHA) approval for the type of sampling being performed."

6.2 Deficiencies Corrected During the Audit (CDAs)

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 isolated requiring only remedial action and therefore can be corrected during the audit (CDA). Deficiencies that can be classified as CDA are those isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and those for which correction of the deficiency can be verified prior to the end of 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.

The audit team identified one CAQ, described below, which was corrected during the audit.

| PERSONNEL CONTACTED DURING THE AUDIT | | | | |
|---|--|-----------------------------------|--|------------------------------------|
| NAME | ORGANIZATION/ DEPARTMENT | PRE- AUDIT MEETING | CONTACTE D DURING AUDIT | POST- AUDIT MEETING |
| Anaya, Gina | NWP U/G Operations | | X | |
| Armendarez, Jesus | NWP U/G Operations | | X | |
| Boyea, Amy | NWP QA Admin. | X | | X |
| Cannon, Val | NWP QA Manager | X | | X |
| Carrasco, Cody | NWP Environmental, Safety and Health/IH | | X | |
| Clark, Jerry | NWP Environmental, Safety and Health/IH Manager | | X | X |
| Dearing, Tracy | NWP Environmental, Safety and Health/IH | | X | X |
| Graham, Theobald | NWP Environmental, Safety and Health/IH | X | X | X |
| Heard, Marcus | CBFO IH | X | X | |
| Hollen, Jim | NWP U/G Operations | | X | |
| Kesterson, Thomas | NWP Environmental, Safety and Health/IH | | X | X |
| Klingler, Larry | NWP QA | | X | |
| Lichty, Thomas | NWP Training | | X | |
| Mason, Randy | NWP Maintenance | | X | |
| Parrish, Ryan | NWP U/G Operations | | X | |
| Punchios, Sheri | NWP QA Staff Admin. | X | | |
| Saiz, Tina | Edgewater Training | | X | |
| Stapleton, Michael | CBFO QA | X | X | |

Summary Table of Audit Results

| Audit Elements | Concern Classification | | | | QA Evaluation | | |
|--|------------------------|----------|-----|-----|---------------|----------------|---------------|
| | CARs | CDAs | Obs | Rec | Adequacy | Implementation | Effectiveness |
| Calibration | | | | | A | S | E |
| Documents | 2 | | | | A | S | E |
| Records | | | | | A | S | E |
| Software | 1 | 1 | | | A | S | E |
| Training/Qualifications | | | | | A | S | E |
| Indoor Air Quality | | | | | A | I | I |
| Underground Access Initiation/Termination | | | | | A | S | E |
| MSHA Air Quality Monitoring | | | | | A | S | E |
| Airborne Contaminant Sampling | | | | | A | S | E |
| Personal Sampling Pump Calibration | 1 | | | | A | S | E |
| Sampling for Waste Generated VOCs | | | | | A | S | E |
| TOTALS | 4 | 1 | | | A | S | E |

Definitions

A = Adequate
 I = Indeterminate
 NA = Not Adequate
 S = Satisfactory

E = Effective
 M = Marginal
 NE = Not Effective

CAR = Corrective Action Report
 CDA = Corrected During Audit
 Obs = Observation
 Rec = Recommendation