



Department of Energy

Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
September 27, 2021

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

Subject: Contract DE-EM0001971, NWP- Transmittal of Audit Report A-21-29, NWP Environmental Monitoring Programs

Dear Mr. Ivey:

Enclosed is the report for Audit A-21-29, Nuclear Waste Partnership LLC (NWP) Environmental Monitoring Programs, related to completed and in-process records packages associated with the Waste Isolation Pilot Plant (WIPP) Annual Site Environmental Report; Groundwater and Surface Water field programs; vegetation, soil, and biota sampling; Discharge Ponds and Sewage Lagoons; Delaware Basin mapping; and other environmental related processes. The audit was conducted August 3 - 5, 2021, at the WIPP near Carlsbad, New Mexico and remotely. The audit team concluded that the areas evaluated are adequate, satisfactorily implemented, and effective. There were no concerns identified during the audit.

This letter provides technical direction only in accordance with the Technical Direction Clause (H.10) of the contract and may not be construed to constitute a change to the contract. Any questions concerning allowability under, or changes to, the contract must be resolved by Ms. Wendy Bauer, CBFO Contracting Officer (CO) at (208) 351-4638 prior to your proceeding in any manner that might obligate the Government beyond the existing contract.

If you have any questions, please contact Mr. Micheal Stapleton, CBFO Quality Assurance Division at (814) 421-3322. For all other questions, please contact myself at (575) 706-0046.

Sincerely,

**DONALD
GADBURY**  Digitally signed by
DONALD GADBURY
Date: 2021.09.27
07:59:02 -06'00'

Donald C. Gadbury
Contracting Officer's Representative
Carlsbad Field Office

Enclosure (1)

cc: w/enclosure (1)

R. Knerr, CBFO	*	ED
M. Bollinger, CBFO		ED
E. Garza, CBFO		ED
D. Jolley, CBFO		ED
W. Bauer, CBFO		ED
K.Y. Craft, CBFO		ED
J. Lopez, CBFO		ED
M. Stapleton, CBFO		ED
S. Dunagan, NWP		ED
S. Strong, NWP		ED
V. Ballew, NWP		ED
S. Saiz, NWP		ED
A. Boyea, NWP		ED
P. Hester, NWP		ED
R. Taylor, NWP		ED
R. Maestas, NMED		ED
D. Biswell, NMED		ED
M. McLean, NMED		ED
N. Barka, NMED		ED
J. Ellis, EPA		ED
T. Peake, EPA		ED
S. Kopp, CTAC		ED
W. Ledford, CTAC		ED
S. Gomez, CTAC		ED
R. Castillo, CTAC		ED
P. Yanez, CTAC		ED
J. Maupin, CTAC		ED
G. White, CTAC		ED
D. Harvill, CTAC		ED
R. Salness, RES		ED
CBFO M&RC		ED
CBFO QA File		

*ED denotes electronic distribution

U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

AUDIT REPORT

OF THE

NWP ENVIRONMENTAL PROGRAMS

CARLSBAD, NEW MEXICO

AUDIT NUMBER A-21-29

August 3 – 5, 2021



Prepared by: PRISCILLA YANEZ (Affiliate) Digitally signed by PRISCILLA YANEZ (Affiliate) Date: 2021.09.22 09:45:57 -06'00' **Date:** _____
Priscilla Yanez, CTAC
Audit Team Leader

Approved by: DARREN JOLLEY Digitally signed by DARREN JOLLEY Date: 2021.09.27 07:32:52 -06'00' **Date:** _____
Darren Jolley, Director
CBFO Quality Assurance Division

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-21-29 was conducted August 3 – 5, 2021, at the Waste Isolation Pilot Plant (WIPP) facility near Carlsbad, New Mexico, and via teleconference. The audit was conducted to evaluate the degree of adequacy, implementation, and effectiveness of the Nuclear Waste Partnership LLC (NWP) Environmental Programs for compliance under DOE/WIPP-99-3119, *Compliance Monitoring Implementation Plan for 40 CFR §191.14(b), Assurance Requirement*, and DOE/WIPP-06-3339, *Waste Isolation Pilot Plant Groundwater Protection Program Plan*, with the requirements of DOE-CBFO-94-1012, *CBFO Quality Assurance Program Document* (CBFO QAPD), and WP 13-1, Nuclear Waste Partnership LLC (NWP) *Quality Assurance Program Description* (NWP QAPD).

As a result, the audit team concluded that the NWP Environmental Programs continue to adequately address applicable upper-tier requirements and remain satisfactorily implemented and effective.

2.0 SCOPE

Audit A-21-29 was conducted to verify the adequacy, implementation, and effectiveness of the NWP Environmental Programs for activities in support of the WIPP in accordance with requirements of the CBFO QAPD and NWP QAPD. The evaluation included quality assurance (QA) and technical reviews of completed and in-process records packages associated with the WIPP Annual Site Environmental Report; Groundwater and Surface Water field programs; vegetation, soil, and biota sampling; Discharge Ponds and Sewage Lagoons; Delaware Basin mapping; and other environmental related processes.

The audit evaluated NWP documents (listed in Attachment 3) established for implementing the following CBFO QAPD requirements:

- Organization and QA Program
- Personnel Qualification and Training
- Document Control and Records Management
- Software Requirements
- Technical Activities

3.0 AUDIT TEAM

Micheal Stapleton	CBFO QAD Management Representative
Priscilla Yanez	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Paul Gomez	QA Auditor, CTAC
Jim Oliver	Technical Specialist, CTAC
Vivien Hall	Technical Specialist, CTAC
Joe Lopez	Technical Specialist, CBFO

4.0 AUDIT PARTICIPANTS

NWP personnel and Regulatory Environmental Services (RES) personnel contacted during the audit are listed in Attachment 1. A pre-audit meeting was held at the WIPP facility near Carlsbad, New Mexico, on August 3, 2021. The audit concluded with a post-audit meeting held at the WIPP facility near Carlsbad, New Mexico, on August 5, 2021.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy, Implementation, and Effectiveness

A summary table of the audit results is provided in Attachment 2. The audit team concluded that the NWP Environmental Programs remain adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2 QA Program/Technical Audit Activities

Audit A-21-29 was conducted through remote or in person interviews, along with documentation reviews. Details of audit activities and the specific objective evidence reviewed are provided in this report. There were no field activities performed during this audit.

5.2.1 Organization and QA Program

The audit team interviewed NWP and RES personnel and reviewed documentation to verify that NWP and RES complies with the requirements of the CBFO QAPD, section 1.1, *Organization and Quality Assurance Program*, and NWP implementing procedure WP 04-CO.01-1, *Conduct of Operations Program – Operations Organization and Administration*.

The NWP organization is formally documented in WP 13-1, *NWP Quality Assurance Program Description* (NWP QAPD). The organization charts for the NWP Environmental Safety & Health and Environmental Monitoring & Hydrology (EM&H) departments are also established. The NWP organization provides for sufficient independence of its QA personnel to identify problems affecting quality, recommend solutions, and verify implementation of corrective actions.

Overall, the NWP and RES organizations and its QA program activities were determined to be adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results in accordance with requirements in the CBFO QAPD.

5.2.2 Personnel Qualification and Training

The audit team reviewed implementing procedure WP 14-TR.01, *WIPP Training Program*, relative to the training and qualification of EM&H personnel, to determine the degree to which the procedure adequately addresses upper-tier requirements. Procedure WP 14-TR.01 was reviewed for adequacy, implementation, and effectiveness.

The audit team reviewed the training records of NWP-RES employees who perform the EM&H monitoring work within the program in order to evaluate the effectiveness of the training.

The audit team reviewed specific training requirements associated with qualifications identified for the Environmental Monitoring Program. The training and qualification requirements are controlled and tracked by WIPP Technical Training.

The audit team reviewed technical training transcripts and qualification cards. All required training was found to be current. All reviewed work orders and their attachments were found to have been conducted/completed by qualified EM&H personnel. The audit team confirmed that all Environmental Monitoring personnel are required to requalify every two years.

Individuals performing environmental monitoring functions and sampling were found to be qualified to the following qualification card as required.

- EM-02 – Groundwater Level Measurements
- EM-11 – New Holland Tractor
- EM-12 – Sewage Lagoon Sampling
- EM-13 – Airborne Particulate Sampling
- EM-15 – Biotic Sampling
- EM-17 – Soil, Surface Water and Sediment Sampling
- EM-18 – Pump and Generator Operation
- EM-23 – Field Parameter Measurements/Final Sample Collection
- ADM-105 – Records Coordinator
- SQA – Software Quality Assurance Qualification Card

The training and qualifications of the NWP-RES Environmental Monitoring Program personnel were determined to be adequately established for compliance with upper-tier requirements, satisfactory in the implementation of these requirements, and effective in achieving the desired results.

5.2.3 Document Control and Records Management

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 NWP QAPD requirements. The audit team reviewed

the following procedures:

- WP 15-RM, *WIPP Records Management Program*
- WP 15-RM3002, *Records Filing, Inventorying, Scheduling, and Dispositioning*

The team concluded that upper-tier requirements are adequately addressed.

Storage and control of QA records was evaluated by the observance of QA records stored in one hour fire-rated cabinets in trailer 918B, the Training Building, and on the second floor of the Safety Building.

Through document review and interviews with the records coordinator, the audit team evaluated the Records Inventory and Disposition Schedule (RIDS) for the Regulatory Environmental Services (RES)/Environmental Monitoring and Hydrology (EM&H)/Groundwater Surveillance and the Regulatory Environmental Services (RES)/Environmental Monitoring and Hydrology (EM&H)/Environmental Monitoring (EM). The audit team verified the Commitment Tracking System has entries for RIDS review as required on an annual basis. Fire-rated cabinets are used for records, and they are locked as required. Uniform File Codes (UFCs) are assigned to all outgoing correspondence and a correspondence log is maintained as required. No issues involving RIDS were identified.

The following EM&H RIDS were reviewed by the audit team:

- RES/EM&H/Groundwater Surveillance RIDS prepared 09/17/2020 and approved 10/13/2020
- RES/EM&H/EM RIDS prepared 10/05/2020 and approved 10/14/2020

The Document Control and Records Management activities of the NWP-RES Environmental Monitoring Program were determined to be 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 Quality Control

The audit team conducted interviews and reviewed implementing procedures to determine the adequacy of NWP's Software Quality Assurance Program (SQAP) per WP 13-1, *Nuclear Waste Partnership LLC Quality Assurance Program Description*, with respect to the CBFO QAPD and determined that the procedure contains adequate flow-down of upper-tier requirements. The audit team evaluated the following NWP implementing procedures:

- WP 02-PC.02, *Delaware Basin Drilling Surveillance Plan*
- WP 02-EC3002, *Delaware Basin Drilling Database Upgrade Process*
- WP 02-1, *WIPP Groundwater Monitoring Program Plan*

- WP 13-QA.04, *Quality Assurance Department Administrative Program*
- WP 16-2, *Software Screening and Control*

The audit team interviewed (by phone) with RES's Environmental Protection Agency (EPA) Compliance Supervisor to discuss the data being monitored and tracked through the Delaware Basin Well Tracking application (DBWTA). During the interview, the audit team and the supervisor discussed environmental notifications, reports, and log in/data entry into databases pertaining to "wells" surrounding WIPP and in the Delaware Basin area. The DBWTA application is an in-house well tracking application developed by the Information Resource Management (IRM) group to streamline the data verification process, eliminating manual entry of data from spreadsheets to the DBWTA. The audit team was satisfied with the conversation discussing the DBWTA process.

The audit team determined that the data from the Information Handling Service (IHS) Markit and Enverus applications/databases (web applications) are accessed weekly to gather data by the environmental team. These applications serve as redundancy checks to the DBWTA where personnel can perform data validation and verification. The IHS database is used to develop database queries to ensure well data information can be confirmed/verified with the Delaware Basin. This data is used to show compliance with EPA regulations. Hardcopy of information is not maintained by RES since these are public records and are available from the New Mexico Oil Conservation District (NMOCD).

The audit team interviewed two NWP Environmental Scientists responsible for groundwater data to discuss the groundwater surface elevation measurements that are gathered and reviewed monthly. The audit team reviewed 3-months of data and verified that the environmental personnel perform data entry into the database. The audit team reviewed hardcopies of data and viewed an electronic version of the data on the database. Environmental Scientists demonstrated online, the process performed and the checks and balances taken to ensure the process is performed according to appropriate procedures. The audit team was satisfied with the information gathered along with topic discussions.

The audit team requested objective evidence from NWP's QA Specialist, specifically on software from the environmental department that is categorized as controlled software. The audit team reviewed NWP's Controlled Software Log to determine which NWP and RES applications and spreadsheets are controlled. The audit team reviewed software screening forms for the following six applications/spreadsheets:

- Environmental and Groundwater Data Verification and Validation
- GW Field Measurements Worksheets
- Surfer 19
- Validation Aid 2012
- Water level Measurements (also called Groundwater Level)
- Win-Situ 4

Applications/spreadsheets contained the updated screening information required by the controlled software log (CSL) indicating current software status.

Overall, the audit team concluded that Software Quality Assurance (SQA) procedures and activities for software management are adequately established for compliance with upper-tier requirements and procedure implementation is satisfactory, resulting in an effective SQA program.

5.3 Technical Activities

5.3.1 DP-831 Discharge Permit

The audit team evaluated the adequacy, implementation, and effectiveness of activities associated with the environmental monitoring program for the New Mexico Environment Department (NMED) DP-831 Discharge Permit. It was noted that the current Discharge Permit has a five-year renewal date. The Discharge Permit renewal is currently in-progress and is being revised based on changes to the WIPP Site.

The team examined and verified the WP 02-2, *WIPP Discharge Permit 831 Monitoring Plan*, and implementing procedures. The purpose of this environmental monitoring plan is to control and monitor the discharge of water contaminants into groundwater and surface water.

The following implementing procedures were examined and verified for required inspections, maintenance, sampling, analysis, and reporting. In addition, personnel qualifications and records management were also examined and verified.

- WP 02-2, *WIPP Discharge Permit 831 Monitoring Plan*
- WP 02-EM.02, *Integrated Sample Control Plan*
- WP 02-EM1022, *Site Discharge Area Inspections*
- WP 02-EM1001, *Sewage Lagoon and Infiltration Controls Sampling*
- WP 02-EC3003, *DP-831 Semi-Annual Report Preparation*
- WP 02-EM1014, *Groundwater Level Measurement*

Field activities (i.e., sampling and inspection) did not occur during the audit period. The audit team performed the examination and verification by reviewing records and interviewing NWP personnel assigned to each procedure listed above.

The environmental monitoring program and implementing procedures provide adequate flow-down of NWP QAPD requirements related to inspections, maintenance, sampling, analysis, reporting, 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 were properly trained and qualified to perform the tasks. Training and qualifications records were identified by the audit team during the audit, and all training

and qualifications records associated with Discharge Permit 831 personnel were verified (see section 5.2.2).

Overall, the procedures reviewed and documentation assembled and evaluated during the audit substantiate that the applicable requirements for NMED 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.

5.3.2 Site Discharge Area Inspection

The audit team obtained and reviewed inspection forms completed during calendar year (CY) 2019, CY 2020, and the first half of CY 2021. The audit team also verified that the completed forms contained the required inspection information/data per Sections 5.1 and 5.2 of WP 02-EM1022 for the Evaporation Ponds and Salt Storage Cells. The forms were signed and dated properly by the inspector performing the inspections and by the RES Site Environmental Compliance (SEC) personnel.

There were no rain events of 2 inches or greater in a 24-hour period in CY 2019, CY 2020, or the first half of CY 2021. There was one event which occurred on June 30, 2021. The post-storm inspection was combined with the next monthly inspection performed on July 13, 2021.

Unsatisfactory (UNSAT) conditions (e.g., on liner integrity, soil cover, and/or soil berm) continued being reported for Salt Storage Pond 1 (SSP1), Salt Storage Pond 2 (SSP2), Salt Cell 1 (SC1), Salt Cell 2 (SC2), Salt Cell 3 (SC3), and the Site and Preliminary Design Validation (SPDV) Material Pile in the monthly inspection forms, to date. Liner integrity was also marked as UNSAT at Storm Water Ponds 1, 2, and 3 (SWP1, SWP2, and SWP3) in June and July of 2021 inspections, and at SSP3 in the July of 2021 inspection. To streamline the process, repairs to liner seams and holes as found at all SWPs, SSPs, SCs, and salt pile drainage ditches and flumes are covered under one Action Request #2153714. The audit team obtained a copy of the draft Work Order #2153714, *Storm Water, Salt Storage, and Salt Pile 60-Mil HDPE Liner Repair*. A contractor has been scheduled to perform repairs under this Work Order. It is noted on the May 12, 2021, inspection form that a surveyor came to map all the tears and holes in the liners of all the ponds and cells. Repairs were scheduled to begin July 19, 2021.

A vertical tear on the north side of the liner berm of SC2 was caused by high winds in March, but none of the contents were released. As required, Condition 30 of the DP-831, the NMED Ground Water Quality Bureau (GWQB) was informed, in a letter dated April 16, 2021, of a Correction Action Plan to repair the tear. A contractor is scheduled to repair the tear in late August 2021.

Although the UNSAT conditions persisted to date, due to the reason discussed above, the audit team concluded that the RES SEC personnel are well versed in the site discharge area evaporation pond and salt storage cell inspections as required; the

program adequately addresses upper-tier requirements; and the procedure was satisfactorily implemented and effective in meeting the requirements of DP-831.

5.3.3 Sewage System Lagoon and Infiltration Control Pond Sampling

The audit team reviewed implementing procedure WP 02-EM1001, *Sewage Lagoon and Infiltration Controls Sampling*, to determine the degree to which the procedure adequately addresses upper-tier requirements. The audit team obtained the following records for the second half of CY 2019, CY 2020, and the first half of CY 2021:

- Sewage Lagoon Sample Data Worksheet (Attachment 1 of WP 02-EM1001)
- Infiltration Controls Sample Data Worksheet (Attachment 2 of WP 02-EM1001)
- Environmental Chain-of Custody (COC)/Request for Analysis (RFA) Record, Hall Environmental Analysis Laboratory Report, and Data Review Report associated with each of the worksheets

The audit team verified that the three EM&H personnel who performed the sewage lagoon and infiltration control pond sampling were properly trained, received both hepatitis A and B vaccination series (once in a lifetime), and are current with tetanus immunizations (once every 10 years).

Based on reviews of the records listed above and interviews with the relevant EM&H personnel, it is concluded that sampling and post-sampling activities were performed and recorded in accordance with procedure WP 02-EM1001. Job hazards (e.g., slips, falls, water safety, and wildlife) and two-person requirement noted in each worksheet are consistent with 02-EM1001JHA. All worksheets and COC/RFA forms were properly completed, reviewed, signed, and dated by the responsible EM&H personnel.

No significant storm events, even with moderate intensity, occurred in CY 2020, therefore no samples were collected from any of the infiltration control ponds (SWP1, SWP2, SWP3, SSP1, SSP2, and SSP3). The H-19 pond was also dry both times of DP-831 sampling in the first half and second half of CY 2020. There was one significant storm event that occurred on June 30, 2021. As indicated in the latest DP-831 report for the reporting period of January 1 to June 30, 2021, the post-storm sampling was performed in July and will be reported in the next DP-831 report. The audit team did not obtain records from the post-storm sampling.

Overall, the audit team concluded that EM&H personnel are well versed in the sampling of the sewage lagoons and infiltration control ponds as required; the program adequately addresses upper-tier requirements; and the procedure was satisfactorily implemented and effective in meeting the requirements of DP-831.

5.3.4 Integrated Sample Control Plan for Sewage System Lagoon and Infiltration Control Pond Sampling

WP 02-EM.02, *Integrated Sample Control Plan*, was adequate regarding the flow-down

of NWP QAPD requirements related to processes for sample control.

The audit team verified the data packages for the Sewage System Lagoon and Infiltration Control Pond sampling from the point of sample collection, to the analysis at the laboratory facilities, and to the validation of the analysis results by NWP. The data packages were assigned sample delivery group numbers (SDGs). The following SDGs were reviewed by the audit team:

- SDG 1910582 Fall 2019 Sewage Sludge samples
- SDG 2004998 Spring 2020 Sewage Sludge samples
- SDG 2011645 Fall 2020 Sewage Sludge samples
- SDG 2104702 Spring 2021 Sewage Sludge samples
- SDG 1910588 Fall 2019 Infiltration Control samples
- SDG 2105636 Spring 2021 Infiltration Control samples

Sampling was performed by appropriately trained and experienced sampling technicians. Samples were taken and then delivered to Hall Environmental Analysis Laboratory in a timely manner. Verification of sample control measures were evident on the COC/RFA within the SDGs. Each sample was preserved in accordance with the preservation methods specified in WP 02-EM1001. The holding times were also met by the sample team to the laboratory for extraction or analysis as required. The WIPP sample numbers and the corresponding sample locations and dates/times, laboratory IDs, and analytes are consistent across the forms (i.e., Sewage Lagoon or Infiltration Controls Sample Data Worksheet and COC/RFA) and reports (Hall Environmental Analysis Laboratory Report and Data Review Report) associated with each SDG.

The record data packages provided by the Hall Environmental Analysis Laboratory are reviewed and maintained by the RES lead validation chemist until the records are ready for transmittal to the Records Archive per the WIPP RIDS for RES/EM&H/Environmental Monitoring (EM). Until then, the record packages are placed in locked fire-rated file cabinets.

Overall, the audit team identified no issues related to implementation of the Integrated Sample Control Plan by NWP. The audit team determined that the plan evaluated during the audit provided documentation that applicable requirements for sample control activities are adequately established for compliance with upper-tier requirements; procedure implementation is satisfactory; and implementation results in an effective Integrated Sample Control Program.

5.3.5 Groundwater Level Measurement

Procedure WP 02-EM1014, *Groundwater Level Measurement*, provided adequate flow-down of NWP QAPD requirements related to processes for groundwater monitoring. Quarterly shallow groundwater level measurements to the nearest hundredth of a foot (0.01 ft) in the piezometers and wells listed in Condition 23 of the DP-831 are conducted and controlled by WP 02-EM1014. The audit team obtained and reviewed Water Level

Measurement Field Data Sheets from December 2019, June 2020, and February, March, April, and July 2021. The Water Level Measurement Field Data Sheets were filled-in properly.

In the March 2021 data sheet, the instrument ID number and its calibration due date were marked as "N/A". Interviews with personnel performing the work verified that the "N/A" mark is allowed per WP 10-AD3029, *Calibration and Control of Monitoring and Data Collection Equipment*, section 1.2, "...Calibration and control measures may not be required for rules, tape measures, levels, and other such devices, if normal commercial equipment provides sufficient accuracy..." The supplier of the measuring tapes claims the tapes were tested and calibrated on an annual basis for accuracy and certified by an outside testing firm. Therefore, calibration due dates are no longer required to be recorded on the data sheets per administrative procedure WP10-AD3029.

All entries on the Water Level Measurement Field Data Sheets were verified as being complete, as applicable, for the piezometers and wells listed in DP-831.

5.3.6 DP-831 Semi-Annual Report Preparation

The audit team obtained and reviewed the following documents for the second half of CY 2019, CY 2020, and the first half of CY 2021, along with the surveillance report S20-21 for sampling and reporting May 4 through June 18, 2020.

- Attachment 1 – Semi-Annual Checklist of WP 02-EC3003, *DP-831 Semi-Annual Report Preparation*, to ensure that the requirements of the DP-831 report to the NMED – Ground Water Quality Bureau (GWQB), covering January to June reporting, are met.
- Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period January 1 through June 30.
- Attachment 2 – Semi-Annual Checklist of WP 02-EC3003, to ensure that the requirements of the DP-831 report to the NMED – GWQB, covering July to December reporting, are met.
- Waste Isolation Pilot Plant Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for Reporting Period July 1 through December 31.

All checklists were completed, signed, and dated by the reviewer and the reports were submitted to the NMED-GWQB prior to the due dates per DP-831.

As indicated in WP 02-EC3003, the checklists are used to ensure all items required by the DP-831 are included in the draft reports before they are finalized and submitted to the NMED GWQB. In this case, the final reports are the only record handled per RIDS. The audit team compared the completed Attachment 1 and Attachment 2 checklists against the corresponding semi-annual discharge monitoring reports and observed that all the required items were included in the reports.

In addition, the audit team also verified the data reported in the semi-annual discharge monitoring reports for the first half of CY 2021 against the Data Review Reports for DP-831 Spring 2021 Sewage Sludge Analyses (SDG 2104702, T514354-04) and Infiltration Controls (SDG 2105636, T514354-04). Total Kjeldhal nitrogen, nitrate-nitrogen, sulfate, total dissolved solid, and chloride concentrations in the sample collected from the SL2 influent and reported in Table 3 of the Semi-Annual Discharge Monitoring Report for Discharge Permit DP-831 for January 1, 2021, through June 30, 2021, are consistent with the concentrations reported in the Data Review Report SDG 2104702. Chloride, sulfate, and total dissolved solid concentrations in the sample collected from SWP1, SWP2, and SWP3 are consistent with the concentrations reported in the Data Review Report SDG 2105636.

Overall, the audit team determined that the procedures evaluated during the audit for performing and documenting DP-831 sampling and inspection activities are adequately established for compliance with upper-tier requirements and procedure implementation is satisfactory resulting in effective reporting.

5.3.7 Groundwater Parameters

The audit team verified the field parameter measurements and final sample collections, per WP 02-EM1010, *Field Parameter Measurements and Final Sample Collection*, and WP 02-EM1002, *Electric Submersible Pump operation & Maintenance Purging*, found in WQSP-3 and WQSP-5 Round 42 reports. The audit team reviewed records for WP 02-EC1003, *Low-Flow Groundwater Purging and Sampling*, for low-flow groundwater purging. The team verified the proper chemicals, reagents, and standards were used in the field for Specific Conductance, Total Dissolved Solids, and pH. The COC was properly filled in and sample preservation was adequate for delivery to the labs. All attachments provided the collection specifics as required by procedure. The pumps were working appropriately per procedure.

5.3.8 Biotic Sampling:

The audit team evaluated procedure WP 02-EM1011, *Biotic Sampling*. The audit team verified the 2020 biotic sampling notebook for records for fish, rabbits, and two samplings of quail from July through November 2020 under COCs 10791, 10808, and 10852. The team verified the records were maintained and properly filled in per procedure WP 13-1.

5.3.9 Surface Water/Sediment Sampling

The audit team evaluated the implementing procedure: WP 02-EM1017, *Surface Water and Sediment Sampling*.

The audit team verified the sewage sampling datasheet 001 on Attachment 1 of procedure 02-EM1017.

This sampling included samples:

WS-SWL-20210414-1.1 collected 4/14/2021 from the sewage lagoon;
WS-TUT-20210421-1.1 collected 4/21/2021 from TUT Tank; and
WS-PCN-20210428-1.1 collected 4/28/2021 from Pierce Canyon.

The samples were reviewed appropriately and properly preserved per COC 10930.

5.3.10 Soil Sampling

The audit team verified that procedure WP 02-EM1009, *Soil Sampling*, was followed for the collection of soil samples using appropriate coordinate logging and collection of adequate samples for analysis. The team verified COC 10917 for the collection of soil samples SS-WFF-20210325-1.1, SE-WFF-20210225-1.1, and SD-WFF-20210325-1.1. All reviewed records were appropriately filled in and were stored in a one-hour fire rated file cabinet.

5.3.11 Vegetation Sampling

The audit team verified vegetation sample collection per procedure WP02-EM1019, *Vegetation Sampling*, for samples BV-SMR-20210721-1.1, BV-WFF-20210721-1.2, and BV-WFF-20210721-2.2 collected under COC 10978. The samples were reviewed appropriately and properly filed.

6.0 CORRECTIVE ACTION REPORTS, DEFICIENCIES CORRECTED DURING THE AUDIT, 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 corrective action reports (CARs). CAQs are defined as follows:

Condition Adverse to Quality – An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies.

Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, transuranic waste site certification, regulatory compliance demonstration, or the effective implementation of the QA program.

No Conditions Adverse to Quality were identified as a result of 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. 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).

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. Examples of CDAs include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or not dated (isolated), or one or two individuals that have not completed a reading assignment (isolated).

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 CDA.

No issues were corrected during this audit.

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 classify 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 as a result of this 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 offered for management consideration as a result of this audit.

7.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During Audit A-21-29

Attachment 2: Summary Table of Audit Results

Attachment 3: NWP Procedures Evaluated

PERSONNEL CONTACTED DURING AUDIT A-21-29				
Name	Title/Organization	Pre-Audit Meeting	Contacted During the Audit	Post-Audit Meeting
Veronica Ballew	QA Programs and Supplier Quality Manager	X	X	X
Allen Hall	Environmental Scientist/RES	X		
Jerome Hernandez	EM&H Sampling Leader/NWP		X	
Victoria Holt	Training and Procedures Lead/NWP		X	
Bill Jaco	CHMM/RES		X	X
Richard Jimenez	Environmental Scientist/RES EM&H	X	X	X
Darren Jolley	CBFO/Manager OQA	X	X	
Hnin Kiang	Environmental Scientist/NWP RES EM&H	X	X	X
Sheri Saiz	QA Staff Admin. / NWP	X	X	X
Rick Salness	Manager / RES EM&H	X	X	X
Hayden Thompson	Environmental Scientist/RES SEC	X	X	X
Rob Watson	Supervisor / RES EPA Compliance		X	

Summary Table of Audit Results

AUDIT ELEMENTS	CAR	CDA	OBSERVATION	RECOMMENDATION	ADEQUACY	IMPLEMENTATION	EFFECTIVENESS
Organization / QA Program					A	S	E
Qualification and Training					A	S	E
Document Control					A	S	E
QA Records					A	S	E
Sampling and Analysis					A	S	E
DP 831 & Lagoons					A	S	E
Reporting					A	S	E
Software QA					A	S	E
SUMMARY	0	0			A	S	E

A – Adequate
 S – Satisfactory
 E – Effective

NWP Documents Evaluated			
No.	Procedure No.	Revision	Document Description
1.	DOE/WIPP-99-2194	11	<i>Waste Isolation Pilot Plant Environmental Monitoring Plan</i>
2.	DOE/WIPP-99-2286	8	<i>Waste Isolation Pilot Plant Environmental Notification/Reporting Implementation Guidance Document</i>
3.	DOE/WIPP-06-3339	8	<i>Waste Isolation Pilot Plant Groundwater Protection Program Plan</i>
4.	DOE/WIPP-17-3591	0	<i>Waste Isolation Pilot Plant Annual Site Environmental Report (ASER) for 2020</i>
5.	WP 02-1	16	<i>WIPP Groundwater Monitoring Program Plan</i>
6.	WP 02-2	4	<i>WIPP Discharge Permit 831 Monitoring Plan</i>
7.	WP 02-EC1002	11	<i>Drinking Water Sampling</i>
8.	WP 02-EC1003	12	<i>Low-Flow Groundwater Purging and Sampling</i>
9.	WP 02-EC3002	11	<i>Delaware Basin Drilling Database Upgrade Process</i>
10.	WP 02-EC3003	3	<i>DP-831 Semi-Annual Report Preparation</i>
11.	WP 02-EM.02	6	<i>Integrated Sample Control Plan</i>
12.	WP 02-EM1001	20	<i>Sewage Lagoon and Infiltration Controls Sampling</i>
13.	WP 02-EM1002	8	<i>Electric Submersible Pump Operation & Maintenance Purging</i>
14.	WP 02-EM1009	8	<i>Soil Sampling</i>
15.	WP 02-EM1010	4	<i>Field Parameter Measurements and Final Sample Collection</i>
16.	WP 02-EM1011	8	<i>Biotic Sampling</i>
17.	WP 02-EM1014	11	<i>Groundwater Level Measurement</i>
18.	WP 02-EM1017	9	<i>Surface Water and Sediment Sampling</i>
19.	WP 02-EM1019	9	<i>Vegetation Sampling</i>
20.	WP 02-EM1022	12	<i>Site Discharge Area Inspections</i>
21.	WP 02-PC.02	10	<i>Delaware Basin Drilling Surveillance Plan</i>
22.	WP 04-CO.01-1	4	<i>Conduct of Operations Program – Operations, Organization, and Administration</i>
23.	WP 10-AD3029	16	<i>Calibration and Control of Monitoring and Data Collection Equipment</i>
24.	WP 13-1	40	<i>Nuclear Waste Partnership LLC Quality Assurance Program Description</i>
25.	WP 13-QA.04	24	<i>Quality Assurance Department Administrative Program</i>
26.	WP 14-TR.01	22	<i>WIPP Training Program</i>
27.	WP 15-RM	10	<i>WIPP Records Management Program</i>
28.	WP 15-RM3002	10	<i>Records Filing, Inventorying, Scheduling, and Dispositioning</i>
29.	WP 16-2	17-FR1	<i>Software Screening and Control</i>