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**NEW MEXICO
ENVIRONMENT DEPARTMENT**

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James C. Kenney
Cabinet Secretary

Jennifer J. Pruett
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 25, 2021

George H. Cushman
Headquarters, Department of the Army
Office of the DCS, G-9
Army Environmental Office, Room 5C140
600 Army Pentagon
Washington, DC 20310-0600

**RE: DISAPPROVAL
FINAL GROUNDWATER PERIODIC MONITORING REPORT
JANUARY THROUGH JUNE 2019 REVISION 1
FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO
EPA ID# NM6213820974
HWB-FWDA-20-003**

Dear Mr. Cushman:

The New Mexico Environment Department (NMED) is in receipt of the Fort Wingate Depot Activity (Permittee) *Final Groundwater Periodic Monitoring Report January through June 2019 Revision 1* (Report), dated December 2020. NMED has reviewed the Report, and hereby issues this Disapproval with the attached comments.

The Permittee must submit a revised Report that addresses all comments contained in the attachment. Two hard copies and an electronic version of the revised Report must be submitted to the NMED. The Permittee must also include a redline-strikeout version in electronic format showing where all revisions to the Report have been made. The revised Report must be accompanied with a response letter that details where all revisions have been

Mr. Cushman
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made, cross-referencing NMED's numbered comments. The Revised Report must be submitted to NMED no later than **May 28, 2021**.

Should you have any questions, please contact Michiya Suzuki of my staff at (505) 476-6046.

Sincerely,

 Digitally signed by Kevin
Pierard
Date: 2021.01.25 13:45:06
-07'00'

Kevin M. Pierard, Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
B. Wear, NMED HWB
M. Suzuki, NMED HWB
L. McKinney, EPA Region 6 (6LCRRC)
L. Rodgers, Navajo Nation
S. Begay-Platero, Navajo Nation
M. Harrington, Pueblo of Zuni
C. Seoutewa, Southwest Region BIA
A. Whitehair, Southwest Region BIA
G. Padilla, Navajo BIA
J. Wilson, BIA
B. Howerton, BIA
R. White, BIA
C. Esler, Sundance Consulting, Inc.
S. Smith, USACE

File: FWDA 2021 and Reading

Attachment

GENERAL COMMENT

1. Presentation of Analytical Data in the Tables

NMED Comment: Although the analytical tables were revised to include data collected from the current and three previous monitoring events and the screening levels are presented on every page for comparison, as directed, the data presentation format used in previous groundwater periodic monitoring reports was not followed in the Report. Accordingly, multiple issues are identified. Some of the issues are listed below:

- a) Analytical data presented in previous periodic monitoring reports were reported with two significant figures while the data presented in this Report were reported with seemingly random significant figures. For example, the perchlorate concentrations in the samples identified as MW20042019, MW18D102017, and MW20102018 are reported with three significant figures (0.349), one significant figure (<0.1), and two significant figures (0.39), respectively. All analytical tables must be revised to report analytical data with two significant figures to be consistent with previous reports.
- b) Some data qualifiers are not defined in the Report. For example, the tetryl concentration in the sample identified as TMW18102018 is reported as 0.21R. However, a notation of "R" is not defined in the pertinent table. All data qualifiers must be defined.
- c) All data presented with "<" in the tables are shaded with a light gray font, which is barely legible. All data presented in the tables must be presented with clear legible font.
- d) Some data are presented with regular black font while the others are presented with bold black font in the tables. However, no explanation was provided to distinguish them. Provide an explanation for the meaning of the bolded values.
- e) Some detected analytes (e.g., naphthalene in MW23 during the October 2018 sampling event) are not listed on the tables. All detected analytes during the current and three previous monitoring events must be listed on the tables.

Revise the Report to correct all issues listed above. As directed in the NMED's July 1, 2020 Disapproval Comment 1, the data presentation format must follow previous groundwater periodic monitoring reports for consistency. Revise the Report accordingly.

SPECIFIC COMMENTS

2. Permittee's Response to NMED's Disapproval Comment 3, dated July 1, 2020

Permittee Statement: "All wells are presented on the figures and are labeled as "not sampled" or "NS" if the well was not sampled for the particular analyte as in previous groundwater monitoring reports."

NMED Comment: The designation and sampling status (e.g., "NS") of some pertinent wells are missing from the figures. For example, Figure 5-3, *Northern Area Explosives in Alluvial Groundwater - April 2019*, does not provide the designation of alluvial well TMW28 and its sampling status. The designation of alluvial well TMW28 must be shown with its sampling status or sampling results on the figure. Provide the designation and the sampling status for all wells that are missing this information in the revised Report.

3. Permittee's Response to NMED's Disapproval Comment 5, dated July 1, 2020

Permittee Statements: "Well BGMW07 was purged using a Reclaimer pump (gas displacement pump) and the turbidity increased as the water column approached the bottom of the well casing and disturbed much of the settled sediment."

and,

"The field team returned the following day to collect the formation water that had entered the well casing screen during recharge. This illustrate [sic] that the water sample is representative of the formation water."

NMED Comment: The results of total metal analysis for BGMW07 may be affected by the sampling techniques; the amount of sediments suspended in the sample matrix may cause significant variation in analytical results. For example, the total iron concentrations in the groundwater samples collected from well BGMW07 on May, 2, 2019, October, 12, 2018, and April 26, 2018 are recorded as 2,590 µg/L, 11,000 µg/L, and 780 µg/L, respectively, according to Table 5-10, *Summary of Total Metals Analytical Results*. On the other hand, the dissolved iron concentrations in the groundwater samples collected from well BGMW07 on May, 2, 2019, October, 12, 2018, and April 26, 2018 are recorded as <250 µg/L, 220 µg/L, and 170 µg/L, respectively, according to Table 5-11, *Summary of Dissolved Metals Analytical Results*. Although the dissolved iron concentrations are relatively stable over time, the total iron concentrations significantly vary. Propose a measure to minimize sampling variation in future sampling events and discuss the measure in the revised Report. Note that the water sample would not be representative of the formation water, if analytical results are affected by sampling techniques.

4. Permittee's Response to NMED's Disapproval Comment 5, dated July 1, 2020

Permittee Statements: "Similarly, Well BGMW08 was purged dry using a hand bailer. Hand bailer was used to collect groundwater from 180 feet below the top of casing and filling the water quality probe cup for data collection, versus using a flow-through cell (which are typically used for low flow dedicated pumps). Air bubbles were most likely trapped on the sensor when the water quality probe was submerged in the cup for data collection, resulting in an increased DO reading."

and,

"The DO readings collected from well BGMW08 were elevated as shown in the purge log form where the lowest reading was 9.14 mg/L and the highest was 17.65 mg/L. Well BGMW08 was purged dry with a submersible pump. The field team returned the following day to collect formation water that entered through the well casing screen during recharge. Since the well was purged dry all water entering the well is considered representative of the formation water."

NMED Comment: Theoretical maximum dissolved oxygen (DO) concentration in water at 15 degrees Celsius is approximately 10 mg/L which does not account for elevation above sea level. 17.65 mg/L would be impossible for a DO concentration and the field crew should have discarded the readings. The water entering the well is representative of the formation water; however, the water sample would not be representative of the formation water unless the sampling techniques are appropriate (see Comment 3 above). Since the Permittee is able to identify the cause of inaccurate DO readings in well BGMW08, discuss appropriate measures to resolve the issue in the revised Report and resolve the issue for future sampling events.

5. Permittee's Response to NMED's Disapproval Comment 9, dated July 1, 2020

Permittee Statement: "The elevated DO in well TMW31S is likely due to the purging method. A submersible pump was used to purge the water into a cup to collect water quality parameters, which likely resulted in air bubbles on the sensor. The bedrock aquifer range for DO was 0.0 in four total wells to 12.20 mg/L in well BGMW08, which also resulted in elevated DO caused by bailing the well dry, collecting the water quality parameters in a cup, creating air bubbles on the sensor."

NMED Comment: Since the Permittee is able to identify the cause of inaccurate DO readings, discuss appropriate measures to resolve the issue in the revised Report and resolve the issue for future sampling events (see Comment 4 above).

6. Permittee's Response to NMED's Disapproval Comment 12, dated July 1, 2020

Permittee Statement: "The new 32 wells will be sampled for 1, 4-dioxane for two

consecutive events in 2020 and will be sampled and analyzed for the full suite of analytical for four consecutive events starting in year 2021.”

NMED Comment: The new wells should have been sampled for the full analytical suite in 2020. The Permittee was previously directed to analyze 1,4-dioxane using EPA Method 8270 Selective Ion Monitoring (SIM) in groundwater samples collected from wells where chlorinated solvents were previously detected. The direction was not followed. Whether or not chlorinated solvents are detected in 2021, 1,4-dioxane analysis must continue for wells where 1,4-dioxane was detected in 2020. Include the provision in the next groundwater monitoring plan update and provide an explanation regarding the failure to follow previous NMED direction.

7. Permittee’s Response to NMED’s Disapproval Comment 16, dated July 1, 2020

Permittee Statement: “All detections have been included in the tables.”

NMED Comment: The SVOC concentrations (naphthalene (0.51 J µg/L), 1,2-dichlorobenzene (0.48 J µg/L), 1,3-dichlorobenzene (0.49 J µg/L), 1,4-dichlorobenzene (0.51 J µg/L), 1,2,4-trichlorobenzene (0.60 J µg/L), and 2-methylnaphthalene (0.46 J µg/L)) were detected in groundwater samples collected from well MW23 during the October 2018 sampling event. However, these compounds are not listed in Table 5-6, *Summary of TPH and SVOC Analytical Results*. All detected analytes during the current and three previous monitoring events must be presented in the revised table (see Comment 1, item e).

8. Permittee’s Response to NMED’s Disapproval Comment 18, dated July 1, 2020

Permittee Statements: “The discrepancy in the 100-foot difference in groundwater elevations of bedrock well BGMW08 measured in January and April 2019 was likely attributed to the presence of a perched water zone that once drained may not recharge each season.”

and,

“The groundwater elevations were all verified through multiple measurements during the field monitoring events and confirmed to accurately record the depth to water.”

NMED Comment: According to Table 4-1, *Northern Area Groundwater Elevations*, depth to water measurements in well BGMW08 in October 2018, January 2019, and April 2019 are recorded as 168.64, 23.46, and 145.77 feet below top of casing (btoc) and well BGMW08 is screened from 165 to 185 feet below ground surface (bgs). Since well BGMW08 is screened at the depths from 165 to 185 feet bgs, the referenced perched zone that raised water level to 23.46 feet bgs does not intercept the screened interval of well BGMW08. Unless well BGMW08 is poorly constructed, an isolated perched zone will not affect the potentiometric surface of the deeper bedrock aquifer. In addition, the water level increased by more than

140 feet from October 2018 to January 2019; then, decreased by more than 120 feet from January 2019 to April 2019. It is possible that hydraulic communication between upper and lower aquifers exists; however, such sudden changes of water level cannot be explained. The Permittee asserts that the measurements are correct. If so, well BGMW08 may be damaged or poorly constructed and a conduit for contaminant migration. Discuss how well BGMW08 was constructed and propose to submit a work plan to investigate the integrity of well BGMW08, if necessary, in the revised Report.

Furthermore, report depth to water readings in feet bgs rather than feet btoc or provide casing stickup length with the ground surface elevation in Table 4-1 so that water and screen depths can directly be compared for each well. Revise the Report accordingly.

9. Permittee's Response to NMED's Disapproval Comment 20, dated July 1, 2020

Permittee Statements: "The Army has contacted many other laboratories and is working towards finding a DOD-certified laboratory that can either meet or achieve levels closer to the NMED suggested screening levels."

and,

"The Army will provide NMED its findings in the near future. Please note that constituents where the method of detection limit, reporting detection limit, or practical quantitation limit exceed the screening level are considered data quality exceptions and are identified as such in the text, tables, and figures where they are presented."

NMED Comment: NMED's May 21, 2019 *Approval with Modifications Letter for the Final 2017 Interim Facility-Wide Groundwater Monitoring Plan, Version 10, Revision 1, Response to NMED Approval with Modifications Letter Dated October 22, 2018* states:

The Permittee secured a laboratory that is able to achieve adequately low limits of quantification (LOQs) for most contaminants. NMED approves implementation of the enhanced analytical procedures. Propose all changes associated with the enhanced analytical procedures in the next Interim Facility-Wide Groundwater Monitoring Plan (IFGMP) update. However, the Permittee also states, "[i]f the presence of compounds requiring these special analytical methods is not confirmed [in four consecutive sampling rounds], the analytical program will revert to the normal methods that were previously used." The Permittee is required to utilize appropriate analytical labs and methods that are capable of achieving LOQs below the respective SSLs. The Permittee must continue to utilize methods capable of achieving LOQs less than the cleanup levels for all future sampling events.

The Permittee states, "[i]n addition, the previous research showed that n-nitrodimethylamine [sic] [NDMA] was not utilized at Fort Wingate Depot Activity

(FWDA).” A large portion of the facility is currently leased to and is being utilized by the Missile Defense Agency (MDA). Activities undertaken by MDA are likely to include utilization of rocket fuels. The LOQ provided by the Permittee in replacement Table 5-1 appears to be four orders of magnitude higher than the SSL. Other facilities under NMED RCRA oversight have been able to contract with analytical laboratories that are able to achieve LOQs much closer to the SSL. One facility has utilized ALS labs in Ontario, Canada to achieve 0.5 to 1.0 ng/L. Another facility has utilized TestAmerica Labs to achieve 4 to 5 ng/L. Therefore, an LOQ of 10 µg/L, which is four orders of magnitude greater than the what the two labs listed above are able to achieve, is not acceptable. NMED cannot defend the assertion that NDMA contamination does not exist at FWDA based on laboratory analysis that can only achieve LOQs that are four orders of magnitude higher than the SSL. If the Permittee cannot provide data that meets the standards, then it will not be possible to demonstrate that releases related to MDA operations have not occurred.

In addition, NMED’s December 17, 2019 letter regarding *Additional Information Related to the August 16, 2019 Proposal to Reset Enforceable Schedule and Resolve Programmatic Issues at Fort Wingate Depot Activity* states:

The Permittee is required to use analytical laboratories and methods that can achieve LOQs at or below the screening levels for all constituents of concern. The Permittee has proposed using labs where the LOQ for an analyte is multiple orders of magnitude above the screening level. This is not acceptable. The Permittee will likely need to use more than one lab to achieve the requirement. Other NMED-regulated facilities have been using multiple labs to achieve appropriate LOQs for many years. NMED cannot defend an assertion that a site is clean without data that support such a conclusion. Therefore, any future CAC requests may be disapproved based on NMED's inability to defend that a site is clean based on the Permittee’s inability to demonstrate that contaminants are not present above applicable cleanup levels.

The direction provided in NMED’s previous letters was not followed. Failure to follow NMED direction constitutes noncompliance and may result in an enforcement action.

10. Permittee’s Response to NMED’s Disapproval Comment 27, dated July 1, 2020

Permittee Statement: “The new wells (BGMW11, BGMW12, MW13S, MW13D, MW-25 through MW-35, MW36S, MW36D, and TMW50 through TMW64) will be incorporated into the full suite of analytical (including TPH-DRO) starting in year 2021.”

NMED Comment: The Permittee’s response to NMED’s July 1, 2020 Disapproval Comment

17 states, “The new wells (BGMW11, BGMW12, MW13S, MW13D, MW-25 through MW-35, MW36S, MW36D, and TMW50 through TMW64) will be incorporated into the full suite of analytical (including TPH-DRO) starting in year 2022.” Resolve the discrepancy in the revised Report. The new wells must be sampled for the full analytical suite starting in calendar year 2021.

Kimberly Rudawsky

From: Christy Esler
Sent: Wednesday, January 27, 2021 2:14 PM
To: Angela Makin; Kimberly Rudawsky; Chasitty Badonie
Subject: NMED Correspondence Received
Attachments: 2021-1-25 D FWDA-20-003 (Final) (006).pdf

Kim & Chasitty,

Please see the attached correspondence from NMED addressed to the Army, Disapproval for the Final Groundwater Periodic Monitoring Report January through June 2019, Revision 1.0 for processing within our 48 hour requirement.

Once processed fully, please provide the tracking form to me for QC.

Remember at this time the process stays as is until we can revise and redirect responsibilities.

Thank you,
Christy

From: Martinez, Cynthia, NMENV <cynthia.martinez1@state.nm.us>
Sent: Wednesday, January 27, 2021 1:52 PM
To: george.h.cushman.civ@mail.mil
Cc: Pierard, Kevin, NMENV <Kevin.Pierard@state.nm.us>; Cobrain, Dave, NMENV <dave.cobrain@state.nm.us>; Wear, Benjamin, NMENV <Benjamin.Wear@state.nm.us>; Suzuki, Michiya, NMENV <Michiya.Suzuki@state.nm.us>; McKinney.Lucas@epa.gov; lasar98@yahoo.com; srbp@navajoadvantage.com; Mark.Harrington@ashiwi.org; clayton.seoutewa@bia.gov; alvin.whitehair@bia.gov; george.padilla@bia.gov; judith.wilson@bia.gov; bj.howerton@bia.gov; 'robin.white@bia.gov' <robin.white@bia.gov>; Christy Esler <cesler@sundance-inc.net>; 'Steve.W.Smith@usace.army.mil' <Steve.W.Smith@usace.army.mil>
Subject: Letter to Mr. Cushman

Good Afternoon,
Please see attachment.

Cynthia Martinez
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg.1
Santa Fe, New Mexico 87505-6313