



DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF, G-9
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

September 21, 2020

Base Realignment and Closure Division

Mr. Kevin Pierard, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

RE: Response to Approval with Modifications, Final Revision 1 Groundwater Periodic Monitoring Report, July through December 2018, Fort Wingate Depot Activity, McKinley County, New Mexico, EPA ID#NM6213820974, HWB-FWDA-19-004

Dear Mr. Pierard:

This letter presents the Army's responses to the New Mexico Environment Department (NMED) Approval with Modifications letter dated July 30, 2020, regarding the Final Revision 1 Groundwater Periodic Monitoring Report, July through December 2018, for the Fort Wingate Depot Activity (FWDA) under RCRA Permit USEPA ID No. NM6213820974. The following are the Army's responses to comments. This letter also transmits the revised replacement pages to the report as requested by NMED, and also a redline-strikeout and two updated electronic copies of the report.

Comments

1) Discrepancy in the Permittee's Cross-reference Response Numbers to the NMED's Disapproval Comments

NMED Comment: The Permittee did not assign a cross-reference number for the Permittee's response to NMED's Comment 4. As a result, the remaining response numbers did not match with NMED's comment numbers. Ensure that each comment and response number is consistent in all future response to comment (RTC) letters.

Army Response: Concur. The Army will ensure each comment and response number is consistent in all future response to comment letters.

2) Permittee's Response to NMED's Disapproval Comment 4, dated January 30, 2020

Permittee Statement: "The Army feels preparing a groundwater monitoring work plan prior to installation of the replacement wells is premature."

NMED Comment: The Permittee failed to submit the Parcel 3 groundwater monitoring plan to NMED on April 2, 2019, as required. Facility groundwater monitoring plans are required to be updated annually for any changes to the program, including addition or removal of wells from the list of active wells. Wells are routinely added to the northern area groundwater monitoring plan as they are installed, and the plan was successfully submitted and approved prior to many of the subsequently installed wells being present. Proposing to wait until all abandoned monitoring wells are replaced is not acceptable. The groundwater monitoring plan is over a year past due, and the Permittee has continued to ignore NMED direction to submit it. Failure to follow NMED constitutes noncompliance and may result in an enforcement action. Remove all statements regarding the Parcel 3 groundwater monitoring from the PMR and provide replacement pages.

Army Response: The Army has removed references to Parcel 3 from this monitoring report as requested. This letter transmits the replacement pages for the report with references to Parcel 3 sampling removed.

Preparation of an effective monitoring and sampling plan require existing well data, especially within an area with a complex, low recharge groundwater regime as demonstrated within Parcel 3. The replacement well installation plan, currently in review with NMED, outlines the procedures for installation and two rounds of sampling prior to integrating the wells into the monitoring network. Part of the two rounds of sampling include collecting groundwater quality data and performance data of the new wells to determine which sampling methods would generate the best quality data. These data will be presented in the well installation report following replacement well installation. Information obtained from that report will be integrated into the monitoring plan to improve data collection.

Furthermore, the Army requested an exemption from monitoring Parcel 3 until munition removal activities were completed. NMED approved the exemption on July 23, 2013 (HWB-FWDA-13-MISC), noting two conditions:

“The permittee must notify NMED 30 days prior to resuming sampling of the remaining groundwater monitoring wells in Parcel 3 after munitions removal activities have been discontinued”

And

“The Permittee must notify NMED of all groundwater monitoring wells that are either damaged or removed during removal activities in Parcel 3. The notification may be part of required status reports submitted to NMED as part of removal activities in Parcel 3.”

The Army presented the notices of damaged and abandoned wells in the Final Parcel 3 Groundwater Background Wells and Replacement Monitoring Wells Installation Work Plan, currently in NMED review as revision 1.

The Army strongly requests a meeting with NMED concerning the submission timing for the abbreviated southern area groundwater monitoring plan.

3) Permittee's Response to NMED's Disapproval Comment 9, dated January 30, 2020.

Permittee Statement: "The mounding suspected to be generated from well 69 leakage has prevented explosives and perchlorate migration towards the Administration Area and west of the known sources of contamination. Removal of the mound would change the flow direction of alluvial groundwater and would change the current contaminant plume shapes, likely to the west. This discussion would be best presented in a corrective measures study not a periodic monitoring report."

NMED Comment: Dissipation of the groundwater mound may expand the extent of contamination. Potential expansion of plumes must be anticipated and addressed before Well 69 is abandoned. Submit a work plan to address the potential issues associated with abandonment of Well 69. The work plan must be approved and the issue adequately addressed before Well 69 is abandoned.

Army Response: The Army does not believe of any potential issues with abandonment of well 69 that would constitute a separate work plan as explained below:

The current well network has ample coverage to monitor any changes in flow or plume shapes that may be associated with abandoning Well 69. These changes and these wells, which include the recently installed RFI wells, currently are and will remain part of the monitoring program. The Army will propose additional wells in the event remediation has not occurred prior to any future plume migration outside of the extent of the monitoring well network.

Calculated groundwater flow velocities published in "Supplemental Groundwater Investigation – Administration and TNT Leaching Beds Areas, (TerranearPMC, 24 March 2006) show wells within areas of the explosives plume have an average rise and fall velocity of 0.0418 feet per day, as calculated from slug tests performed. This average includes existing monitoring wells TMW21, TMW22, TMW23, TMW24, TMW29, and TMW06. At this rate, once the groundwater mound has dissipated, the plumes would be predicted to migrate to the west- northwest at 15 feet per year, provided no natural attenuation occurs and contaminant migration velocities equal groundwater flow velocity.

Considering these facts, along with the diversion of the natural direction of groundwater flow the groundwater mound is causing, the Army believes the current

well network can address reasonably anticipated flow changes. Once the mounding has dissipated, the groundwater flow path will eventually return to natural flow directions. These changes will be slow, and can be captured through the active monitoring on-going in the area. Any changes to the plume geometry would be captured by the well network and included in periodic monitoring reports.

The Army will submit a well abandonment plan for Well 69 for review and approval to NMOSE. Copies of the approved work plan will be submitted to NMED for NMED's administrative records.

4) Permittee's Response to NMED's Disapproval Comment 10, dated January 30, 2020.

Permittee Statements: "The Army believes that BGMW08 may be in a separate sandstone lens; however, the groundwater at this well originates from the same target formation, similar to existing bedrock well TMW02." and,

"The Painted Desert unit within the northern groundwater area is representative of the same depositional environment and the lithology would have the same geochemical properties. Having the same geochemical properties would allow for the evaluation of background metals concentrations, as waters reside in the same geologic formation and subsurface environment."

NMED Comment: Bedrock well TMW02 is located close to bedrock well TMW40D. According to Table 5-9, *Summary of Dissolved Metals Analytical Results*, pages 6 and 7, the concentrations of dissolved metals are not comparable in groundwater samples collected from these bedrock wells. For example, the selenium concentrations in groundwater samples collected from well TMW02 exceeded the applicable screening level of 50 µg/L in the past four sampling events, while the highest selenium concentration in groundwater samples collected from well TMW40D was recorded as 3.5 µg/L. Similarly, the manganese concentrations in groundwater samples collected from well TMW40D were recorded approximately 50 µg/L in the past four sampling events, while the highest manganese concentration in groundwater samples collected from well TMW02 was recorded as 2.9 µg/L. Even if the groundwater at wells TMW02 and TMW40 originates from the same target formation, the concentrations of dissolved metals are not comparable. The Permittee provides a justification for the use of BGMW08 as a background well because the lithology would have the same geochemical properties. However, the observation of analytical data collected from wells TMW02 and TMW40D indicate otherwise. Based on the available data, well BGMW08 must not be used as a background monitoring well.

Army Response: Comment noted. The Army would like to propose abandoning TMW02, as it is being influenced locally by alluvial groundwater as explained below. Other bedrock wells have been installed during the Northern Area Groundwater adjacent to TMW02 and would provide coverage in monitoring groundwater conditions. The Army also proposes to abandon BGMW08 as a background well due to low recharge rates.

After further review of the well logs in the area, the Army notes that TMW02 is screened at the alluvial/bedrock interface and is likely mixing with alluvial groundwater at this one location. As shown on the attached soil boring logs from TMW02, TMW40D and TMW40S, the total depth of TMW40S is within five feet of the top of screen of TMW02 (Attachment 1). Along with this, TMW02 and TMW40S & D soil borings show a silty clay/ clayey layer at 60 feet bgs with a compacted silty sand/sandstone around 62 to 65 feet. The position of the screen in TMW02 is very close to the alluvium, and there is almost certainly some exchange between the alluvium and the shallowest bedrock.

The Army has also reviewed metals concentrations, specifically selenium as NMED has in their last response, to present further evidence that TMW02 is chemically representative of alluvial groundwater. Attachment 2 is a graph showing selenium concentrations from adjacent alluvial wells (TMW03, TMW04, TMW13, TMW40S) and adjacent bedrock wells (TMW40D, TMW36, TMW38). The presented data spans the last seven monitoring events. Alluvial wells and TMW02 show elevated and similar concentration levels of selenium compared to near bedrock wells. TMW02 is likely measuring a mixture of both alluvial and bedrock groundwater quality; and this well is likely resulting in a localized bedrock nitrate plume.

5) Permittee's Response to NMED's Disapproval Comment 14, dated January 30, 2020

Permittee Statement: "The Army will provide a discussion in future groundwater monitoring reports and provide trend analyses for explosives concentrations at TMW03, TMW04, TMW23, and TMW40S in future groundwater monitoring reports."

NMED Comment: The Final Groundwater Periodic Monitoring Report January through June 2019, dated March 2020, does not provide the pertinent discussion. More specifically, provide figures (concentrations versus time) that present trends for RDX concentrations at wells TMW03, TMW04, TMW23, and TMW40S in future groundwater monitoring reports. No response required.

Army Response: Acknowledged.

If you have questions or require further information, please contact me at George.h.cushman.civ@mail.mil, 703-455-3234 (Temporary Home Office, preferred) or 703-608-2245 (Mobile).

Sincerely,



George H. Cushman IV
BRAC Environmental Coordinator
Fort Wingate Depot Activity

Enclosures

CF:

Dave Cobrain, NMED HWB

Ben Wear, NMED HWB

George Cushman, FWDA BEC

Steve Smith, USACE

Saqib Khan, USACE SWT

Sharlene Begay-Platero, Navajo Nation

Mark Harrington, Pueblo of Zuni

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Admin Record, OH/NM

Kimberly Rudawsky

From: Christy Esler
Sent: Tuesday, September 29, 2020 10:09 AM
To: kevin.pierard@state.nm.us; dave.cobrain@state.nm.us; Ben Wear; Michiya Suzuki; Cushman, George H IV CIV USARMY HQDA DCS G-9 (USA); Ian Thomas (ian.m.thomas2.civ@mail.mil); Smith, Steven W CIV USARMY CESWF (USA); Saqib SWF Khan; Sharlene Begay-Platero; Mark Harrington; Clayton Seoutewa; george.padilla@bia.gov; B.J Howerton
Subject: Response to AwM, Final Rev1 Groundwater PMR Report July through Dec 2018, Fort Wingate Depot Activity
Attachments: Final Rev1 GWPMR_ July_Dec2018_Response to Approval w Mod_FWDA_21Sept2020 (003).pdf

Mr. Pierard,

The Department of the Army respectfully submits the attached letter, Response to Approval with Modifications, Final Revision 1 Groundwater Periodic Monitoring Report, July through December 2018 (HWB-FWDA-19-004), Fort Wingate Depot Activity. The official submission including replacement pages will be provided by the Army's contractor to your attention.

If you have any questions or require further information, please contact George Cushman at George.h.cushman.civ@mail.mil, 703-455-3234 (Temporary Home Office).

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Sundance Consulting, Inc., under contract with the U.S Army Corps of Engineers, is respectfully submitting the attached letter on behalf of the Army.

Thank you,

Christy Esler | Program Manager

Sundance Consulting, Inc.

Woman-Native American-Owned Small Business

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