



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

February 25, 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, January through June 2018, Fort Wingate Depot Activity, McKinley County, New Mexico, EPA ID#NM6213820974, HWB-FWDA-19-001.

Dear Mr. Pierard:

This letter presents the Army's responses to the New Mexico Environment Department (NMED) Approval with Modifications letter dated December 27, 2019, regarding the Final Groundwater Periodic Monitoring Report, January through June 2018, Revision 1 for the Fort Wingate Depot Activity (FWDA) under RCRA Permit EPA ID No. NM6213820974. The following are the Army's responses to comments.

Comments

1. The Permittee's Response to NMED's Disapproval Comment 1

Permittee Statement: "This revised report will contain bookmarked pdfs of the analytical reports and an Access database of the data."

NMED Comment: The access database is included in Appendix E, *Historical Groundwater Analytical Data*; however, the data file is not accessible. Ensure that the file is accessible and submit an electronic copy of the Access file.

Army Response: Comment Noted and Concurred. Due to the limitation of the DVD disc, on occasions it does not open large files in MS Access. The Army recommends copying the file onto the computer hard drive then open the file with the appropriate program. The Army will submit a new disc with this letter containing an electronic copy of the Access file.

2. The Permittee's Response to NMED's Disapproval Comment 2, Item a

Permittee Statement: "Water levels from the January event contoured at a 1-foot interval shows the mound can influence water levels, and thus flow directions, up to several hundred feet outward from Well 69. This mound significantly influences groundwater flow and quality in the alluvial aquifer of the Administration Area as reflected by the flat area of the 5-foot potentiometric contours of Figure 4-1 and Figure 4-2. Well 69 is currently used as a minor non-potable water supply at FWDA."

NMED Comment: The Video Log for Well 69, submitted on July 30, 2019, did not provide conclusive evidence to evaluate whether or not the well was leaking. The Permittee previously informed NMED of a plan to abandon Well 69. The potential leak from Well 69 may adversely influence the flow and quality of the alluvial groundwater and may possibly both dilute and expand the contaminant plumes. Provide an update for the plan in a response letter.

Army Response: Comment Noted. As notified in our October 22, 2019, response letter, White Sands Missile Range (WSMR) is occasionally using Well 69 for non-potable water supply. BRAC is working to resolve the Well 69 occasional usage with WSMR. Once an agreement is reached, the Army will work toward a contract action for the proper abandonment of Well 69.

3. The Permittee's Response to NMED's Disapproval Comment 3

Permittee Statement: "An abbreviated groundwater monitoring plan [for Parcel 3] will be prepared after the installation and development of the background/replacement wells."

NMED Comment: According to the NMED's direction provided by Comments 7 and 14 in the Approval with Modifications Final Revision 1 Parcel 3 Groundwater RCRA Facility Investigation Report, one background groundwater monitoring well in the vicinity of the arroyo and one replacement groundwater monitoring well for well CMW18 are required. A work plan to propose the installation of the wells is required to be submitted no later than December 31, 2019. There are potentially more than 30 existing groundwater monitoring wells in Parcel 3 that can be sampled. There is no justification for why these two proposed wells must be installed prior to the preparation of the groundwater monitoring plan for Parcel 3. The work plan must be submitted as scheduled.

Army Response: Comment Noted. The Army has submitted the first of the two work plans to NMED, titled Final Parcel 3 Groundwater Background Wells and Replacement Monitoring Wells Installation Work Plan. The work plan was received by NMED on December 20, 2019. The work plan addresses NMED's comments 7, 9, and 14 from the Approval with Modifications Final Revision 1 Parcel 3 Groundwater RCRA Facility Investigation Report correspondence. The work plan proposes to replace abandoned wells due to soil excavation activities and install

three additional background monitoring wells in the two accessible locations identified from on-site reconnaissance performed in June 2019.

The Army identified two accessible areas for locating background monitoring wells, one northeast of dry well BGMW05 adjacent to an eastern arroyo as suggested by NMED's comment 7 and one south in Parcel 1 adjacent to the main arroyo as suggested by NMED's comment 9 of the above-mentioned correspondence. The work plan proposes to install two background wells in Parcel 1 and one background well adjacent to an arroyo northeast of BGMW05.

In response to NMED's comment 14, the Army identified 11 monitoring wells including CMW18 within Parcel 3 that have been abandoned due to soil excavation activities. Please note that some of these wells were damaged due to flooding or have been dry. These wells need to be replaced to maintain the southern groundwater monitoring well network density and provide a sufficient data set for appropriate groundwater monitoring. These 11 replacement wells are also proposed in the work plan submitted to NMED on December 20, 2019.

The Army first needs to install replacement wells that have been abandoned as a result of interim soil removal within and around HWMU area in Parcel 3. There are approximately 11 wells that are either abandoned or are confirmed dry. These abandoned and dry wells are concentrated within or adjacent to the HWMU, the suspected source of Parcel 3 groundwater contamination. Pending NMED approval of the Final Parcel 3 Groundwater Background Wells and Replacement Monitoring Wells Installation Work Plan, the Army will install and develop the proposed replacement wells after the fieldwork for the HWMU removal project is completed. This is due to operational safety distances, replacement well proximity to HWMU excavations, and heavy ground disturbances by equipment in the HWMU which could affect groundwater concentrations and/or damage any newly installed monitoring well. The Army will then prepare an abbreviated groundwater monitoring plan after the installation and development of the background/replacement wells. The proposed wells need to be installed so the well installation, location, and groundwater yield data can be included in the abbreviated groundwater monitoring work plan. This will provide information to properly select the appropriate sampling method (low-flow pump, bailer, Bennett pump, snap sampler) at each well location. The eight proposed sampling events will then generate eight consecutive quarters of the complete well network. The Army respectfully requests a meeting with NMED to discuss this response if the agency has any concerns.

4. The Permittee's Response to NMED's Disapproval Comment 4

Permittee Statement: "Section 4.1.2 has been edited to list the reference points used to calculate the alluvial groundwater gradients."

NMED Comment: The statement contains a typographical error. Section 4.1.2 discusses the bedrock rather than the alluvial groundwater system. The pertinent section that has been edited is Section 4.1.1. No revision required.

Army Response: Comment Noted.

5. The Permittee's Response to NMED's Disapproval Comment 5

Permittee Statement: "The instance that NMED has drawn attention to is the one location where the alluvial groundwater is higher than the bedrock groundwater level. Outside of this location, bedrock groundwater is higher than alluvial groundwater, making MOST of the northern area bedrock groundwater levels, not ALL, higher than the alluvial groundwater levels."

NMED Comment: The number of nested wells that were installed at the same locations in both bedrock and alluvial aquifers appears to be insufficient to demonstrate the accuracy of the statement. There are only three nested wells (TMW31S/D, TMW39S/D, and TMW40S/D) at the site. The alluvial groundwater elevations were higher at wells TMW31S/D and TMW39S/D and lower at well TMW40S/D in April 2018. It is not clear how the Permittee can conclude that the elevation of bedrock groundwater is higher than that of alluvial groundwater in most locations. Provide the data and discussion that demonstrate the accuracy of the statement in the response letter or revise the original statement in Executive Summary and Section 4.1.2. Provide replacement pages, as appropriate.

Army Response: Comment Noted. Most of the bedrock wells in the Northern Area groundwater workshop area have a higher groundwater elevation than alluvial wells. The exceptions are bedrock monitoring wells TMW31D and TMW39D. These locations are nested with alluvial wells TMW31S and TMW39S, respectively. Alluvial Well TMW31S is 0.03 foot (less than 4 tenths of an inch) higher than its nested bedrock well TMW31D. Alluvial well TMW39S is 0.51 foot (6.12 inches) higher than its nested bedrock well TMW39D. Below is a list of alluvial wells located near bedrock wells and their groundwater elevations collected in April 2018. The groundwater elevation data are also presented on Figures 4-2 (alluvial, April 2018) and 4-4 (bedrock, April 2018) from this report.

<u>Alluvial Wells – elevation (ft);</u>	<u>Bedrock Wells– elevation (ft)</u>
TMW04 – 6643.97	TMW36 – 6668.12
TMW40S – 6645.57	TMW40D – 6670.40
TMW11 – 6649.16	TMW17 – 6664.74
TMW47 – 6654.56	BGMW10 – 6671.00
TMW13 – 6649.24	TMW38 – 6658.00
TMW29 – 6644.75	TMW38 – 6658.00

Of the listed wells above, the bedrock well water levels are on average 17.2 feet higher than its comparable alluvial well. These data are presented on Tables 4-1 and

4-2, and on Figures 4-2 and 4-4 of this report. No changes to the document are warranted.

6. Permittee's Response to NMED's Disapproval Comment 6

NMED Comment: Although the Permittee provided sufficient explanation for why additional concentration contour lines would not provide an accurate representation of the plume, the Permittee failed to discuss whether or not there is a potential for a more recent release from the Administration Area that affects nitrate levels in groundwater, as directed by NMED's Disapproval Comment 6. Provide the discussion in the response letter.

Army Response: Comment Noted. The Army has no knowledge of any historic or recent release of nitrate from the Administration Area. The Administration Area sanitary sewer lines were active until 2015. An investigation of the sewer lines was included in the Northern Area Groundwater RFI Work Plan; however, per NMED direction, this was removed from the plan.

Additional monitoring wells installed during the Northern Area Groundwater RFI effort should provide additional information to determine a potential secondary source.

7. The Permittee's Response to NMED's Disapproval Comment 10

Permittee Statement: "Please note that at wells sampled by disposable bailer the dissolved oxygen probe likely was not being completely submerged within the sample, as the readings were likely collected from a partial volume of water from the bailer as the wells' yield and recharge is low. As stated in the Parcel 3 Groundwater RFI response, the Army considered a different manufacturer of a comparable instrument and changed to a YSI ProDSS water quality meter for the October 2018 sampling event to address this issue."

NMED Comment: Even if the instrument is replaced, the issue associated with low and slow recharge may not be resolved because the instrument requires the probe to be fully submerged in water. Under the circumstances where a volume of water is insufficient to measure dissolved oxygen concentrations, a colorimetric dissolved oxygen ampoule may be more suitable. Evaluate whether such ampoule (e.g., available from Chemetrics) may potentially eliminate the issue. Provide a discussion in the response letter.

Army Response: The Northern Area has over 10 years of groundwater quality data from wells equipped with dedicated low-flow sampling pumps. These wells are distributed across the Northern Area and provide a geospatial representation of groundwater quality in the area. Monitoring wells that have very low recharge are bailed to retrieve a sample and thus creates a high bias on DO. Utilizing an ampoule as suggested by NMED can provide accurate results for DO with limited sample;

however, the means to retrieve the sample, from these low recharge low yield wells, will allow the sample to be compromised by interaction with surface air. This will void the accuracy of the ampoule test method. If approved by NMED, the use of passive sampling technology previously proposed by the Army would allow for collection of a groundwater sample from a low recharge well and prevent the sample from being compromised.

Monitoring wells that have enough recharge to be purged and sampled via dedicated low-flow pump (27 wells in the alluvial aquifer, distributed throughout the administration and workshop areas) have a closed system from well screen to the water quality meter. This provides the most representative value of DO. The number of wells where previously identified high DO values were out of range (values higher than the theoretical threshold) is very low considering the amount of sufficient data collected at the site since 2008.

If you have questions or require further information, please call me at (505) 721-9770.

Sincerely,

PATTERSON.MAR Digitally signed by
PATTERSON.MARK.C.1229214493
K.C.1229214493 Date: 2020.02.25 08:54:06 -05'00'

Mark Patterson
BRAC Environmental Coordinator

Enclosures

CF:

Dave Cobrain, NMED HWB
Ben Wear, NMED HWB
Steve Smith, USACE
Saqib Khan, USACE SWT
Sharlene Begay-Platero, Navajo Nation
Mark Harrington, Pueblo of Zuni
Kelly Noble, Pueblo of Zuni
Clayton Seoutewa, SW BIA
George Padilla, Navajo BIA
B.J. Howerton, BIA
Admin Record, OH/NM

Christy Esler

From: Christy Esler
Sent: Wednesday, February 26, 2020 9:53 AM
To: saqib.Khan@usace.army.mil
Cc: JohnDavid Nance, PMP
Subject: FW: Groundwater Periodic Monitoring Report, Response to Approval w Modifications, FWDA- HWB-FWDA-19-001
Attachments: Jan-Jun2018_GPMR_Rev1-AwM-Army_Response_25Feb2020.pdf

Saqib,

Per your request on afternoon of 25 Feb 2020 I have prepared and shipped out the Army's responses to the NMED Approval with Modifications letter dated December 27, 2019, regarding the Final Groundwater Periodic Monitoring Report, Jan-Jun 2018 Revision 1.0 and the DVD containing Historical Groundwater Data (Appendix E) for overnight delivery to NMED.

We will track the package and include the delivery confirmation along with the letter and DVD for the FWDA Administrative Record.

FedEx tracking number- 8149 6545 7353

Thank you,
Christy

From: Christy Esler
Sent: Tuesday, February 25, 2020 9:10 AM
To: kevin.pierard@state.nm.us; dave.cobrain@state.nm.us; benjamin.wear@state.nm.us; michiya.suzuki@state.nm.us
Cc: lan.m.thomas2.civ@mail.mil; Smith, Steven W CIV USARMY CESWF (US) <Steve.W.Smith@usace.army.mil>; saqib.Khan@usace.army.mil; Mark.Harrington@ashiwi.org; Kelly.Noble@ashiwi.org; clayton.seoutewa@bia.gov; George.Padilla@bia.gov; bj.howerton@bia.gov
Subject: Groundwater Periodic Monitoring Report, Response to Approval w Modifications, FWDA- HWB-FWDA-19-001

Mr. Pierard,

The attached letter presents the Army's responses to the NMED Approval with Modifications letter dated December 27, 2019, regarding the Final Groundwater Periodic Monitoring Report, Jan-Jun 2018 Revision 1.0, Fort Wingate Depot Activity. The official submission will be provided to your attention under separate cover from the Army's contractor.

If you have questions or require further information, please call Mark Patterson at 505-721-9770.

Respectfully submitted,

Christy Esler | Program Manager

Sundance Consulting, Inc.

Woman-Native American-Owned Small Business

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Christy Esler

From: JohnDavid Nance, PMP <jnance@sundance-inc.net>
Sent: Monday, February 10, 2020 9:24 AM
To: Christy Esler; Angela Makin
Subject: CD for response letter

Good morning-

We sent a disc to you with the april 2018 gw database on it. Should arrive today. It is for the submission of the april 2018 pmr response letter. The letter is currently with saqib and making its way up the chain to you. Any questions let me know

thanks,
Johndavid

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Company Chief, NMED HWB

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