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DEPARTMENT OF THE ARMY
FORT WINGATE DEPOT ACTIVITY
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FORT WINGATE, NM 87316

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NMED
Hazardous Waste Bureau

January 8, 2018

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

RE: Final Groundwater Monitoring Northern Area Background Well Installation Letter Work Plan Army Response to comments, New Mexico Environmental Department Approval with Modifications letter dated December 30, 2017 (HWB-FWDA-17-008), Fort Wingate Depot Activity McKinley County, New Mexico.

Dear Mr. Kieling:

This letter is in reply to the New Mexico Environmental Department (NMED) Approval with Modifications letter dated December 30, 2017, reference number HWB-FWDA-17-008, regarding the *Final Fort Wingate Depot Activity Groundwater Monitoring Northern Area Background Well Installation Letter Work Plan*. The following are the Army's responses to comments 1, 2, 3, and 5 received from NMED in the letter.

Comments:

1) **Section 5.0, Field Methodology, lines 15-16, page 5**
Permittee Statement: "Field personnel will install screen throughout the thickness of the target bedrock unit."

NMED Comment: There are two water-bearing zones (first and second bedrock water-bearing zones) in the target bedrock unit underneath the facility. Each bedrock background groundwater monitoring well must be screened across one water-bearing zone only, not both. If, while installing screen for the bedrock aquifer, the water-bearing zones cannot be isolated, groundwater samples collected from the two-combined water-bearing zones will not represent actual background conditions. In a response letter, propose to isolate each water- bearing zone.

Army Response:
Concur. The Army does propose to isolate each water bearing-zone during drilling advancement. Steel casing will be advanced continuously to total depth during drilling operations to seal off each water-bearing zone as encountered. The pull-back installation method will be used to set the well. Using this method, the steel casing previously advanced to total depth is slowly extracted as the well is built from the bottom up, and the casing seal will not be disturbed. Wells will be screened across a single water bearing unit only, with bentonite grout sealing the annulus between solid well riser and borehole.

2) **Section 5.0, Field Methodology, lines 17-18, page 5**
Permittee Statement: "Field personnel will install 2-inch diameter schedule 40 polyvinyl chloride (PVC) groundwater monitoring wells with a 2-inch annulus."

NMED Comment:
Detection of common plastic additives such as bis(2-ethylhexyl) phthalate is a recurring issue during the groundwater monitoring events at the facility. In addition, PVC is less desirable for monitoring wells where organic constituents are analyzed due to its potential for sorption and leaching of contaminants. NMED recommends using stainless steel as a well screen material for bedrock background monitoring wells. In addition, the Permittee must make an effort to minimize such contamination while purging and sampling (e.g., equipment (pumps, tubing and hailers) must be selected accordingly). No revisions are necessary.

Army Response:
Comment noted. Bis (2-ethylhexyl) phthalate is an additive used in flexible PVC pipes to make it flexible. Rigid PVC does not contain this additive. Rigid PVC will be used in the well construction for groundwater monitoring wells at FWDA. PVC pipe has been selected for use in monitoring wells at FWDA because it is a corrosion resistant material, is nearly impervious to biological growth, and is a lighter material that is much easier to install. In comparison, steel well casings have the potential to leach chromium into groundwater, are more susceptible to pitting, and would be much more difficult to safely install in wells of the proposed depths due to weight.

The detection of bis (2-ethylhexyl) phthalate in groundwater monitoring water samples is potentially due to flexible clear tube used to collect groundwater via low flow sampling, or as a laboratory contaminant. The Army will take extra measures to select appropriate sampling equipment and materials to minimize contamination during purging and sample collection.

3) **Figure 3, Schematic of Proposed Well Construction**

NMED Comment: The schematic of proposed well construction in Figure 3 does not depict separate outer and inner casings. The Permittee must propose to install the wells with an appropriate seal or telescoped well casing in order to prevent cross-contamination between the alluvial and bedrock aquifers. Include the revised figure in a response letter.

Army Response: A revised Figure 3 is attached to this response letter.

5) **Permittee Statement:** "Groundwater samples will be collected from the four new bedrock background groundwater monitoring wells in accordance with the approved Interim Groundwater Monitoring Plan and will be consistent with the same analytical suite as the sentinel wells, MW23 and MW24."

NMED Comment: The analytical suite for sentinel wells, MW23 and MW24 includes nitrate/nitrite, explosives, perchlorate, TAL metals, VOC, SVOC, TPH-DRO and TPH-GRO. Although the proposed analytical suite may be sufficient for future monitoring purposes at the facility, PCBs, pesticides, and herbicides analyses must be conducted by

EPA Methods 8082A, 8081A, and 8151A, respectively, during the initial sampling events. If these analytes are not detected in the groundwater samples collected from the proposed background groundwater monitoring wells during the first two monitoring events, the analysis may be discontinued for subsequent groundwater sampling events. In the response letter, propose to include analysis for PCBs, pesticides, and herbicides during the initial two sampling events in addition to the proposed analytical suite for the groundwater samples collected from the proposed groundwater monitoring wells.

Army Response:
Sentinel wells MW23 and MW24 are sampled for the following analytes using the listed methods.

- Total explosives by method 8330B
- TCL VOCs by method 8260C
- TCL SVOCs by method 8270D
- TCL pesticides by method 8081A
- TAL total and dissolved metals by methods 6010C/6020A/7470A
- Nitrate/nitrite by method 9056A
- Perchlorate by method 6860

The Army agrees to additionally sample the installed bedrock groundwater monitoring wells for PCBs by method 8082A and herbicides by method 8151A for the first two sampling events. If there are no detections of these analytes during the first two sampling events, these methods will be removed from the sampling suite for these wells. The sentinel wells and existing background wells are not currently sampled for TPH-DRO or TPH-GRO, therefore any new background wells will also not be sampled for TPH-DRO or TPH-GRO.

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

Sincerely,

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Mark Patterson
BRAC Environmental Coordinator

Enclosures

CF: Media

D Cobrain, NMED HWB
B Wear, NMED HWB

M Suzuki, NMED HWB
M Patterson, FWDA BEC
Saqib Khan, USACE SWT