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**Certified Mail - Return Receipt Requested**

May 23, 2023

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  
GROUNDWATER PERIODIC MONITORING REPORTS  
JANUARY THROUGH JUNE 2021 AND  
JULY THROUGH DECEMBER 2021  
FORT WINGATE DEPOT ACTIVITY  
MCKINLEY COUNTY, NEW MEXICO  
EPA ID# NM6213820974  
HWB-FWDA-22-002  
HWB-FWDA-23-001**

Dear Mr. Cushman,

The New Mexico Environment Department (NMED) is in receipt of the Fort Wingate Depot Activity (Permittee) *Groundwater Periodic Monitoring Report January through June 2021* (January through June 2021 Report), dated June 2022, and *Groundwater Periodic Monitoring Report July through December 2021* (July through December 2021 Report), dated September 2022. NMED has reviewed the Reports, and based on similar issues and discrepancies between the two, has chosen to provide comments for both monitoring reports in this one letter. NMED hereby issues this Disapproval for both monitoring reports with the following comments.

**GENERAL COMMENTS**

**1. Inaccuracies/Discrepancies**

**NMED Comment:** Both Reports contain multiple inaccuracies and discrepancies. The Permittee has failed to provide NMED with accurate groundwater monitoring reports, as demonstrated by the 12 subsequent pages of inaccuracies and discrepancies, prior to the further ten pages of comments on the content. The quality of these documents is unacceptable and indicates an overall lack of quality assurance / quality control. Examples are listed as follows:

SCIENCE | INNOVATION | COLLABORATION | COMPLIANCE

Hazardous Waste Bureau - 2905 Rodeo Park Drive East, Building 1, Santa Fe, New Mexico 87505-6313  
Telephone (505) 476-6000 - [www.env.nm.gov](http://www.env.nm.gov)

January through June 2021 Report

- a) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – January 2021:**  
The groundwater elevation in well MW23 is depicted as 6,639 feet in Figure 4-1, while it is reported as 6,637.83 (6,638) feet in Table 4-1, *Northern Area Groundwater Elevations*. Resolve the discrepancy in the revised Report.
- b) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – January 2021:**  
The groundwater elevation in well MW37 is depicted as 6,636 feet in Figure 4-1, while it is reported as 6,625.84 (6,626) feet in Table 4-1. Resolve the discrepancy in the revised Report.
- c) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – January 2021:**  
The groundwater elevation in well MW38 is depicted as 6,633 feet in Figure 4-1, while it is reported as 6,621.71 (6,622) feet in Table 4-1. Resolve the discrepancy in the revised Report.
- d) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – January 2021:**  
The groundwater elevation in well MW39 is depicted as 6,635 feet in Figure 4-1, while it is reported as 6,618.17 (6,618) feet in Table 4-1. Resolve the discrepancy in the revised Report.
- e) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – January 2021:**  
The groundwater elevation in well TMW23 is depicted as 6,643 feet in Figure 4-1, while it is reported as 6,642.45 (6,642) feet in Table 4-1. Resolve the discrepancy in the revised Report.
- f) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map – April 2021:** The groundwater elevation in well MW37 is depicted as 6,636 feet in Figure 4-2, while it is reported as 6,626.14 (6,626) feet in Table 4-1. Resolve the discrepancy in the revised Report.
- g) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map – April 2021:** The groundwater elevation in well MW38 is depicted as 6,634 feet in Figure 4-2, while it is reported as 6,622.00 (6,622) feet in Table 4-1. Resolve the discrepancy in the revised Report.
- h) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map – April 2021:** The groundwater elevation in well MW39 is depicted as 6,635 feet in Figure 4-2, while

it is reported as 6,618.38 (6,618) feet in Table 4-1. Resolve the discrepancy in the revised Report.

- i) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – April 2021:** The nitrite concentration in the groundwater sample collected from well BGMW01 is depicted as <1.20 mg/L in the figure, while it is reported as <0.12 mg/L in Table 5-2, *Summary of Nitrate-N and Nitrite-N Analytical Results*. In addition, the limit of detection (LOD) value reported in Figure 5-1 (i.e., <1.20 mg/L) exceeds the applicable screening level of one (1) mg/L for nitrite. Nitrite is not listed as a data quality exception in Section 5.4, *Data Quality Exceptions*. Resolve the discrepancy in the revised Report.
- j) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – April 2021:** The nitrite concentration in the groundwater sample collected from well BGMW02 is depicted as <1.20 mg/L in the figure, while it is reported as <0.12 mg/L in Table 5-2. Resolve the discrepancy in the revised Report. (See item i above.)
- k) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater – April 2021:** The perchlorate concentration in the groundwater sample collected from well BGMW02 is depicted as 0.66 µg/L in the figure, while it is reported as 0.66 J µg/L in Table 5-4, *Summary of Perchlorate Analytical Results*. Resolve the discrepancy in the revised Report.
- l) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater – April 2021:** The perchlorate concentration in the groundwater sample collected from well MW24 is depicted as <0.10 µg/L in the figure, while it is reported as <1.0 µg/L in Table 5-4. Resolve the discrepancy in the revised Report.
- m) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater – April 2021:** The perchlorate concentration in the groundwater sample collected from well TMW24 is depicted as <0.50 µg/L in the figure, while it is reported as <0.10 µg/L in Table 5-4. Resolve the discrepancy in the revised Report.
- n) **Figure 5-7, Northern Area VOCs Concentrations in Alluvial Groundwater - April 2021:** The volatile organic compounds (VOCs) concentrations in the groundwater sample collected from well MW33 is depicted as “not detected” (ND) in the figure, while it is reported as 0.51 J µg/L in Table 5-5, *Summary of VOC Analytical Results*. Resolve the discrepancy in the revised Report.

- o) Figure 5-8, Northern Area VOCs Concentrations in Alluvial Groundwater - April 2021:** The carbon disulfide concentration in the groundwater sample collected from well TMW53 is depicted as 0.4 J µg/L in the figure, while it is reported as 1.2 µg/L in Table 5-5. Resolve the discrepancy in the revised Report.
- p) Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - April 2021:** The total petroleum hydrocarbon diesel range organics (TPH-DRO) concentration in the groundwater sample collected from well BGMW12 is depicted as <116 µg/L in the figure, while it is reported as <120 µg/L in Table 5-6, *Summary of TPH and SVOC Analytical Results*. Resolve the discrepancy in the revised Report.
- q) Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - April 2021:** The TPH-DRO concentration in the groundwater sample collected from well BGMW13D is depicted as <112 µg/L in the figure, while it is reported as <110 µg/L in Table 5-6. Resolve the discrepancy in the revised Report.
- r) Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - April 2021:** The TPH-DRO concentration in the groundwater sample collected from well BGMW13S is depicted as <104 µg/L in the figure, while it is reported as <100 µg/L in Table 5-6. Resolve the discrepancy in the revised Report.
- s) Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater - April 2021:** The TPH-DRO concentration in the groundwater sample collected from well BGMW13S is depicted as <104 µg/L in the figure, while it is reported as <100 µg/L in Table 5-6. Resolve the discrepancy in the revised Report.

July through December 2021 Report

- a) Section 5.1, Water-Quality Parameters, line 14, page 5-1:** The text states, “[t]he bedrock wells ranged from 9.34 °C in TMW49 to 17.69 °C in BGMW07.” According to Table 5-1, *Stable Groundwater Parameters*, the temperature reading for well BGMW07 is reported as 15.02 °C. Resolve the discrepancy in the revised Report.
- b) Section 5.1, Water-Quality Parameters, line 39, page 5-1:** The text states, “in the bedrock aquifer, the [dissolved oxygen (DO)] range was 0.00 in multiple wells to 6.94 mg/L in well TMW18.” According to Table 5-1, the DO reading in well TMW19 is recorded as 6.99 mg/L and exceeds the highest referenced reading (i.e., 6.94 mg/L) among bedrock wells. Resolve the discrepancy in the revised Report.
- c) Section 5.2.5, Other Organic Compound, line 28, page 5-4:** The text states, “TPH-DRO was detected in six alluvial wells.” According to Figure 5-9, *Northern Area*

*TPH-DRO in Alluvial Groundwater – October 2021*, the TPH-DRO concentrations exceeded screening levels in the groundwater samples collected from seven alluvial wells (MW20, MW26, MW36S, MW38, BGMW13S, TMW08, and TMW59). Resolve the discrepancy in the revised Report.

- d) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – July 2021:** The groundwater elevation in well MW37 is depicted as Not Gauged (NG) in Figure 4-1, while it is reported as 6,635.53 feet in Table 4-1. Resolve the discrepancy in the revised Report.
- e) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – July 2021:** The groundwater elevation in well MW38 is depicted as Not Gauged (NG) in Figure 4-1, while it is reported as 6,633.20 feet in Table 4-1. Resolve the discrepancy in the revised Report.
- f) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – July 2021:** The groundwater elevation in well MW39 is depicted as Not Gauged (NG) in Figure 4-1, while it is reported as 6,634.97 feet in Table 4-1. Resolve the discrepancy in the revised Report.
- g) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – July 2021:** The groundwater elevation in well TMW21 is depicted as 6,643 feet in Figure 4-1, while it is reported as 6,643.76 (6,644) feet in Table 4-1. Resolve the discrepancy in the revised Report.
- h) **Figure 4-1, Northern Area Alluvial Groundwater Contour Map – July 2021:** The groundwater elevation in well TMW23 is depicted as 6,643 feet in Figure 4-1, while it is reported as 6,642.49 (6,642) feet in Table 4-1. Resolve the discrepancy in the revised Report.
- i) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map – October 2021:** The groundwater elevation in well MW31 is depicted as 6,640 feet in Figure 4-2, while it is reported as 6,640.61 (6,641) feet in Table 4-1. Resolve the discrepancy in the revised Report.
- j) **Figure 4-2, Northern Area Alluvial Groundwater Contour Map – October 2021:** The groundwater elevations in piezometer PZ10 and well BGMW11 are both recorded as 6,635 feet. However, these wells are not depicted on top of the 6,635 feet groundwater elevation contour line in Figure 4-2. Revise the figure for accuracy.

- k) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – October 2021:** The nitrate concentration in the groundwater sample collected from well TMW01 is depicted as 9.2 mg/L in the figure. According to Table 5-2, *Summary of Inorganic Anions Analytical Results*, two samples were separately collected on October 8 and 15, 2021; therefore, one must be identified as a duplicate sample. The nitrate concentrations were recorded as 9.2 and 9.5 mg/L in the table. The Permittee must always report the higher concentration (9.5 mg/L) of a duplicate pair in all figures, tables, or discussions. Revise the figure to report the higher nitrate concentration.
- l) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – October 2021:** The nitrite concentration in the groundwater sample collected from well TMW02 is depicted as <0.60 mg/L in the figure, while it is reported as <0.06 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- m) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – October 2021:** The nitrate concentration in the groundwater sample collected from well TMW07 is depicted as 0.13 mg/L in the figure, while it is reported as 0.11 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- n) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – October 2021:** The nitrite concentration in the groundwater sample collected from well TMW10 is depicted as <1.2 mg/L in the figure, while it is reported as <0.06 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- o) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – October 2021:** The nitrate concentration in the groundwater sample collected from well TMW22 is depicted as 13 mg/L in the figure, while it is reported as 11 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- p) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – October 2021:** The nitrate concentration in the groundwater sample collected from well TMW23 is depicted as 20 mg/L in the figure, while it is reported as 17 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- q) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – October 2021:** The nitrate concentration in the groundwater sample collected from well TMW41 is depicted as 5.0 mg/L in the figure, while it is reported as 4.9 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- r) **Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – October 2021:** The nitrate concentration in the groundwater sample collected from well

TMW45 is depicted as 1.2 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 12, 2021; therefore, one must be identified as a duplicate sample. The nitrate concentrations were recorded as 1.2 and 1.3 mg/L in the table. The Permittee must always report the higher concentration (1.3 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher nitrate concentration.

- s) **Figure 5-3, Northern Area Explosives in Alluvial Groundwater – October 2021:**  
The HMX concentration in the groundwater sample collected from well TMW43 is depicted as 0.37 J  $\mu\text{g/L}$  in the figure, while it is reported as  $<0.20 \mu\text{g/L}$  in Table 5-3, *Summary of Explosives Analytical Results*. Resolve the discrepancy in the revised Report. In addition, HMX is spelled as “NMX” in the figure. Correct the typographical error in the revised Report.
- t) **Figure 5-3, Northern Area Explosives in Alluvial Groundwater – October 2021:**  
The nitrobenzene concentration in the groundwater sample collected from well TMW24 is depicted as 0.25 J  $\mu\text{g/L}$  in the figure, while it is reported as  $<0.20 \mu\text{g/L}$  in Table 5-3. Resolve the discrepancy in the revised Report.
- u) **Figure 5-4, Northern Area Explosives in Bedrock Groundwater – October 2021:**  
The tetryl concentration in the groundwater sample collected from well TMW30 is depicted as 0.68 J  $\mu\text{g/L}$  in the figure, while it is reported as  $<0.20 \mu\text{g/L}$  in Table 5-3. Resolve the discrepancy in the revised Report.
- v) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater – October 2021:**  
The perchlorate concentration in the groundwater sample collected from well MW24 is depicted as  $<0.20 \mu\text{g/L}$  in the figure, while it is reported as  $<0.10 \mu\text{g/L}$  in Table 5-4, *Summary of Perchlorate Analytical Results*. Resolve the discrepancy in the revised Report.
- w) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater – October 2021:**  
The perchlorate concentration in the groundwater sample collected from well TMW02 is depicted as 6.1  $\mu\text{g/L}$  in the figure. According to Table 5-4, two samples were separately collected on October 8, 2021; therefore, one must be identified as a duplicate sample. The perchlorate concentrations were reported as 6.4 and 6.1  $\mu\text{g/L}$  in the table. The Permittee must always report the higher concentration (6.4  $\mu\text{g/L}$ ) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher perchlorate concentration.
- x) **Figure 5-5, Northern Area Perchlorate in Alluvial Groundwater – October 2021:**  
The perchlorate concentration in the groundwater sample collected from well TMW44 is depicted as  $<0.48 \mu\text{g/L}$  in the figure, while it is reported as 0.24  $\mu\text{g/L}$  in

Table 5-4. Resolve the discrepancy in the revised Report.

- y) **Figure 5-7, Northern Area VOCs in Alluvial Groundwater – October 2021:** The chloromethane concentration in the groundwater sample collected from well MW31 is depicted as 0.30 J  $\mu\text{g/L}$  in the figure, while it is reported as <0.50  $\mu\text{g/L}$  in Table 5-5, *Summary of VOC Analytical Results*. Resolve the discrepancy in the revised Report.
- z) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The bromide concentration in the groundwater sample collected from well MW23 is depicted as 0.54 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 11, 2021; therefore, one must be identified as a duplicate sample. The bromide concentrations were reported as 0.57 and 0.54 mg/L in the table. The Permittee must always report the higher concentration (0.57 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher bromide concentration.
- aa) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The bromide concentration in the groundwater sample collected from well TMW02 is depicted as 1.2 mg/L in the figure, while it is reported as 0.49 J mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- bb) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The chloride concentration in the groundwater sample collected from well TMW02 is depicted as 350 mg/L in the figure, while it is reported as 310 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- cc) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The chloride concentration in the groundwater sample collected from well TMW22 is depicted as 160 mg/L in the figure, while it is reported as 140 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- dd) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The bromide concentration in the groundwater sample collected from well TMW33 is depicted as 1.8 mg/L in the figure, while it is reported as 2.2 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- ee) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The chloride concentration in the groundwater sample collected from well TMW33 is depicted as 850 mg/L in the figure, while it is reported as 2,400 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.



- ff) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The bromide concentration in the groundwater sample collected from well TMW39S is depicted as 1.4 mg/L in the figure, while it is reported as 0.99 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- gg) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The chloride concentration in the groundwater sample collected from well TMW39S is depicted as 220 mg/L in the figure, while it is reported as 210 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- hh) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The bromide concentration in the groundwater sample collected from well TMW41 is depicted as 1.2 mg/L in the figure, while it is reported as 0.95 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- ii) **Figure 5-13, Northern Area Bromide and Chloride in Alluvial Groundwater – October 2021:** The chloride concentration in the groundwater sample collected from well TMW43 is depicted as 220 mg/L in the figure, while it is reported as 73 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- jj) **Figure 5-14, Northern Area Bromide and Chloride in Bedrock Groundwater – October 2021:** The chloride concentration in the groundwater sample collected from well TMW49 is depicted as 180 mg/L in the figure, while it is reported as 330 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- kk) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well MW23 is depicted as 3.9 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 11, 2021; therefore, one must be identified as a duplicate sample. The sulfate concentrations were reported as 4.2 and 3.9 mg/L in the table. The Permittee must always report the higher concentration (4.2 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher sulfate concentration.
- ll) **Figure 5-15, Northern Area Sulfate in Alluvial Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well MW35 is depicted as 910 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 13, 2021; therefore, one must be identified as a duplicate sample. The sulfate concentrations were reported as 990 and 910 mg/L in the table. The Permittee must always report the higher concentration (990 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher sulfate concentration.

- mm) Figure 5-15, Northern Area Sulfate in Alluvial Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well SMW01 is depicted as 620 mg/L in the figure, while it is reported as 560 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- nn) Figure 5-15, Northern Area Sulfate in Alluvial Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well TMW01 is depicted as 800 mg/L in the figure, while it is reported as 770 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- oo) Figure 5-15, Northern Area Sulfate in Alluvial Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well TMW02 is depicted as 1,400 mg/L in the figure, while it is reported as 1,300 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- pp) Figure 5-15, Northern Area Sulfate in Alluvial Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well TMW07 is depicted as 1,800 mg/L in the figure, while it is reported as 770 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- qq) Figure 5-15, Northern Area Sulfate in Alluvial Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well TMW22 is depicted as 750 mg/L in the figure, while it is reported as 920 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- rr) Figure 5-15, Northern Area Sulfate in Alluvial Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well TMW39S is depicted as 980 mg/L in the figure, while it is reported as 880 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- ss) Figure 5-15, Northern Area Sulfate in Alluvial Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well TMW41 is depicted as 780 mg/L in the figure, while it is reported as 740 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- tt) Figure 5-16, Northern Area Sulfate in Bedrock Groundwater – October 2021:** The sulfate concentration in the groundwater sample collected from well TMW55 is depicted as 610 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 8 and 15, 2021; therefore, one must be identified as a duplicate sample. The sulfate concentrations were reported as 730 and 610 mg/L in the table. The Permittee must always report the higher concentration (730 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the

figure to report the higher sulfate concentration.

- uu) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The fluoride concentration in the groundwater sample collected from well MW23 is depicted as 0.76 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 11, 2021; therefore, one must be identified as a duplicate sample. The fluoride concentrations were reported as 0.76 and 0.78 mg/L in the table. The Permittee must always report the higher concentration (0.78 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher fluoride concentration.
- vv) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The fluoride concentration in the groundwater sample collected from well MW24 is depicted as 0.97 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 11, 2021; therefore, one must be identified as a duplicate sample. The fluoride concentrations were reported as 0.98 and 0.97 mg/L in the table. The Permittee must always report the higher concentration (0.98 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher fluoride concentration.
- ww) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The fluoride concentration in the groundwater sample collected from well MW35 is depicted as 0.15 mg/L in the figure. According to Table 5-2, two samples were separately collected on October 13, 2021; therefore, one must be identified as a duplicate sample. The fluoride concentrations were reported as 0.15 and 0.16 mg/L in the table. The Permittee must always report the higher concentration (0.16 mg/L) of a duplicate pair in all figures, tables, and discussions. Revise the figure to report the higher fluoride concentration.
- xx) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The phosphate concentration in the groundwater sample collected from well MW39 is depicted as <0.1.2 mg/L in the figure. Correct the typographical error in the revised figure.
- yy) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The phosphate concentration in the groundwater sample collected from well SMW01 is depicted as <0.25 mg/L in the figure, while it is reported as <2.5 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- zz) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The fluoride concentration in the groundwater sample collected from well TMW01 is depicted as 0.44 mg/L in the figure. According to Table 5-2,

two samples were separately collected on October 8 and 15, 2021, and the fluoride concentrations were reported as 0.43 and 0.36 mg/L. Resolve the discrepancy in the revised Report.

- aaa) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The phosphate concentration in the groundwater sample collected from well TMW02 is depicted as <2.5 mg/L in the figure, while it is reported as <0.25 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- bbb) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The phosphate concentration in the groundwater sample collected from well TMW04 is depicted as <2.5 mg/L in the figure, while it is reported as <1.2 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- ccc) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The phosphate concentration in the groundwater sample collected from well TMW15 is depicted as <1.2 mg/L in the figure, while it is reported as <0.50 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- ddd) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The fluoride concentration in the groundwater sample collected from well TMW15 is depicted as 1.7 mg/L in the figure, while it is reported as 1.6 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- eee) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The phosphate concentration in the groundwater sample collected from well TMW21 is depicted as <0.50 mg/L in the figure, while it is reported as <1.2 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- fff) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The phosphate concentration in the groundwater sample collected from well TMW29 is depicted as 0.62 mg/L in the figure, while it is reported as <1.2 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- ggg) **Figure 5-17, Northern Area Fluoride and Phosphate in Alluvial Groundwater – October 2021:** The phosphate concentration in the groundwater sample collected from well TMW34 is depicted as <10 mg/L in the figure, while it is reported as 10 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- hhh) **Figure 5-18, Northern Area Fluoride and Phosphate in Bedrock Groundwater – October 2021:** The phosphate concentration in the groundwater sample collected from well TMW31D is depicted as <0.25 mg/L in the figure, while it is reported as

<2.5 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.

The Permittee's failures to provide accurate documents result in extended review times for NMED. The Permittee has repeatedly been directed to review all documents for accuracy prior to submittal to NMED. Failure to follow NMED direction constitutes noncompliance and may result in an enforcement action. Revise the Reports to address this multitude of inaccuracies and discrepancies.

## 2. Recurrence of Previous Issues

**NMED Comment:** The Reports contain multiple recurrences of the same issues that NMED identified during previous reviews. Most of these issues were resolved in the Permittee's previous responses; therefore, the issues should have been eliminated from the new Reports. For example, Section 5.1, *Water-Quality Parameters*, in the July through December 2021 Report states, "[g]roundwater-specific conductance values measured during the October 2021 sampling event in the alluvium aquifer ranged from 0.006 millisiemens per centimeter (mS/cm) in well MW01 to 15.9 mS/cm in well TMW08; and in the bedrock aquifer, the range was 1.24 mS/cm in well TMW17 to 31.5 mS/cm in well BGWM07. Specific conductance values correspond to USEPA or NMED secondary water quality standards for total dissolved solids (TDS) concentrations (40 CFR 143)." Comment 10 in the NMED's September 9, 2021 *Disapproval* stated, "[a]lthough the ranges of specific conductance values measured in October 2020 are discussed, it is not clear whether or not these values exceed the USEPA or NMED secondary water quality standards for TDS concentrations. Include the discussion in the revised Report." This comment was addressed in the Permittee's January 12, 2022 response letter that stated, "[s]pecific conductance values can be converted to TDS by multiplying the conductivity by an empirically determined conversion factor. This conversion factor may vary from 0.55 to 0.9, depending on the soluble components of the water and on the temperature of measurement (American Public Health Association [APHA], 1992). Due to the range of the appropriate conversion factors at the site, some wells may exceed the USEPA secondary MCL for TDS of 500 mg/L (USEPA, 2021)." Section 5.1 must provide a comparable discussion in the revised Report.

Review and address NMED's previous comments, where applicable, in the revised Reports. Failure to follow NMED direction constitutes noncompliance and may result in an enforcement action.

## 3. Inclusion of Per- and Polyfluorinated Substances (PFAS) Analysis

**NMED Comment:** NMED's October 2022 *Risk Assessment Guidance for Investigations and Remediation* (RAG) provides screening levels for per- and polyfluorinated substances (PFAS). PFAS may potentially be detected in groundwater samples collected from the wells located in the vicinity of the former fire training and sewage treatment facility areas. The Permittee must propose to conduct PFAS analysis for the groundwater samples collected from the

selected wells in two consecutive sampling events using appropriate sampling and analytical methods in the upcoming Interim Northern Area Groundwater Monitoring Plan.

#### **SPECIFIC COMMENTS**

**4. Section 1.0, Introduction, lines 24-25, page 1-1 in the January through June 2021 Report, and Section 1.0, Introduction, lines 25-27, page 1-1 in the July through December 2021 Report**

**Permittee Statement:** “Starting in year 2021 for four consecutive events, the 35 new wells will be sampled and analyzed for the full suite of analytes as shown in Table 2-2.”

**NMED Comment:** Table 2-2, *Northern Area Groundwater Sampling Matrix*, does not indicate that 1,4-dioxane analysis was conducted for the 35 new wells except for wells MW27 and MW37 through NW39 during the October 2021 sampling event; therefore, stating that all 35 new wells will be sampled and analyzed for the full suite of analytes is inaccurate.

Comment 2 of NMED’s *Approval with Modifications Revised Final 2022 Interim Northern Area Groundwater Monitoring Plan*, dated March 8, 2021, stated, “the Permittee must conduct 1,4-dioxane analysis in addition to the analyses required for each [35-] wells during the April 2021 sampling event.” The Permittee’s October 26, 2021 response letter stated, “[t]he Army is collecting additional samples to verify the presence and absence of 1,4 dioxane from all new wells.” However, the Permittee did not conduct 1,4-dioxane analysis for the 32 new wells in 2021.

In addition, Comment 2 of NMED’s *Army’s Responses to the Approval with Modifications*, dated August 3, 2021, stated, “[t]he 1,4-dioxane data collected in 2020 for the 32 wells are not usable for any decision-making purpose.” The Permittee’s January 12, 2022 response letter stated, “[t]he 1,4-Dioxane data collected in 2020 for the 32 new wells will not be used for any decision-making purpose.” Although the Permittee concurred that 1,4-dioxane analytical results collected in 2020 for the 32 wells were not usable for any decision-making purpose in the response letter, 1,4-dioxane analysis was not conducted for the 32 new wells during the 2021 sampling events. The Permittee must conduct 1,4-dioxane analysis for all wells as directed by NMED and agreed to by the Permittee, if the analyses have yet to be conducted.

**5. Section 2.3, Data Management and Validation, lines 26-27, page 2-3 in the January through June 2021 Report, and Section 2.3, Data Management and Validation, lines 32-33, page 2-3 in the July through December 2021 Report**

**Permittee Statement:** “The QC samples used the same ID number as the parent sample followed by ‘D’ for duplicate, as specified in the GWMP.”

**NMED Comment:** The chemical composition of the quality control (QC) samples must not be biased by their sample designations. The QC samples on a chain of custody form must be designated accordingly to prevent potential bias by laboratory chemists. Include this provision in the upcoming Interim Northern Area Groundwater Monitoring Plan.

6. **Section 4.1.2, Northern Area Bedrock Groundwater System, lines 4-7, page 4-2, and Section 6.0, Summary, lines 18-20, page 6-1 in the January through June 2021 Report, and Section 4.1.2, Northern Area Bedrock Groundwater System, lines 4-7, page 4-2, and Section 6.0, Summary, lines 25-27, page 6-1 in the July and December 2021 Report**

**Permittee Statements:** "The groundwater flow direction has not been fully characterized in the bedrock aquifer beneath the Workshop Area. Elevation data depicted in Figure 4-3 and Figure 4-4 show a decrease in a northern direction toward a path of least resistance."  
and,

"Groundwater flow direction in the bedrock aquifer beneath the Workshop Area has not been fully characterized but appears to flow generally to the west."

**NMED Comment:** These statements appear contradictory regarding the groundwater flow direction beneath the Workshop Area. Resolve the discrepancy in the revised Reports.

In addition, although NMED agrees that the groundwater flow direction is not fully understood in the bedrock aquifer beneath the Workshop Area, NMED does not agree that the elevation data and the contour lines depicted in Figures 4-3 and 4-4 demonstrate groundwater flow directions beneath the Workshop Area. For example, groundwater elevations in wells TMW52 and TMW58 are recorded as 6,646 and 6,664 feet, respectively, in Figure 4-3 of the July through December 2021 Report. Well TMW52 is closely located southeast of well TMW58; therefore, a steep gradient in the southeast direction is indicated at the location. Similarly, the groundwater elevations in wells TMW53 and TMW63 are reported as 6,647 and 6,669 feet, respectively. Well TMW53 is closely located west of well TMW63; therefore, a steep gradient in the west direction is indicated at the location. The groundwater flow direction beneath the Workshop Area significantly varies between the wells.

The increment of contour lines was refined from ten-feet to five-feet to better assess groundwater flow directions, and new wells were installed in 2019 to better characterize the bedrock aquifer. Despite the efforts, groundwater flow direction in the bedrock aquifer beneath the Workshop Area has not been characterized. Evaluate whether additional bedrock wells are necessary to characterize groundwater flow direction(s) in the bedrock aquifer beneath the Workshop Area. Additional wells in the areas a) west of well TMW58; b) northwest of well TMW58; c) between wells TMW53 and TMW52; and d) north of well TMW63 may be sufficient to characterize groundwater flow direction in the bedrock aquifer beneath the Workshop Area. Propose to submit a work plan to determine the groundwater flow direction in the bedrock aquifer beneath the Workshop Area. Also, include a discussion

regarding the strategies employed to characterize groundwater flow direction in the bedrock aquifer beneath the Workshop Area in the response letter.

**7. Section 4.1.2, Northern Area Bedrock Groundwater System, lines 14-16, page 4-2 in the January through June 2021 Report, and Section 4.1.2, Northern Area Bedrock Groundwater System, lines 14-16, page 4-2 in the July and December 2021 Report**

**Permittee Statement:** "Additional characterization of bedrock groundwater flow conditions is proposed in the Final Groundwater Supplemental RCRA Facility Investigation Work Plan, Revision 4, Fort Wingate Depot Activity, McKinley County, New Mexico (Sundance, 2018a)."

**NMED Comment:** All of new bedrock wells proposed in the referenced work plan were already installed prior to the 2021 monitoring events and the *Final Northern Area Groundwater RCRA Facility Investigation Report* was submitted to NMED in September 2021. If there is/was any additional effort to characterize the bedrock flow conditions that NMED is unaware of, provide a clarification in the response letter; otherwise, remove the statement from the revised Reports.

**8. Section 5.2.1, Nitrate and Nitrite, lines 9-11, page 5-2 in the January through June 2021 Report, Section 5.2.1, Anions, lines 11-14, page 5-2 in the July through December 2021 Report**

**Permittee Statements:** "In addition, nitrate was detected at a concentration of 11 mg/L in the groundwater sample collected from background alluvial monitoring well BGMW02 located on the FWDA boundary and upgradient of any SWMUs or AOCs."  
and,

"In addition, nitrate was detected at a concentration of 13 mg/L in the groundwater sample collected from background alluvial monitoring well BGMW02 located on the FWDA boundary and upgradient of any SWMUs or AOCs."

**NMED Comment:** There are three alluvial monitoring wells (BGMW01, BGMW03, and TMW28) in the vicinity of well BGMW02. The nitrate concentrations in these wells are reported as below the applicable screening level of 10 mg/L; 3.2 mg/L for BGMW01, 1.3 mg/L for BGMW03, and <0.06 mg/L for TMW28 in October 2021. The extent of nitrate contamination around well BGMW02 appears to be localized. Since the location of well BGMW02 is close to the Interstate Highway, rainwater runoff from the road may potentially be accumulating near well BGMW02 and seeping into the casing of well BGMW02. Conduct a survey to investigate a) whether there is any damage to the surface completion of well BGMW02 (e.g., cracks on concrete collar) and b) whether there is any sign of surface water accumulation (e.g., ponding, drainage ditch) near well BGMW02 during the upcoming groundwater monitoring event. Report the findings in the corresponding periodic groundwater monitoring report.



**9. Section 5.2.1, Anions, lines 25-33, page 5-2 in the July through December 2021 Report**

**Permittee Statement:** “In addition to nitrate and nitrite, the following anions were detected in groundwater samples collected from alluvial and bedrock monitoring wells during the October 2021 groundwater sampling event (the maximum detected concentrations are shown in parentheses below and bold values exceed the selected screening levels).

Bromide (6.2 J mg/L at bedrock monitoring well BMW07)  
Chloride (9,800 mg/L at bedrock monitoring well B[G]MW07)  
Fluoride (**4.2** mg/L at alluvial monitoring well B[G]MW03)  
Phosphate (10.0 mg/L at alluvial monitoring well TMW34)  
Sulfate (**6,100** mg/L at alluvial monitoring well TMW08)”

**NMED Comment:** The chloride concentration at bedrock monitoring well BGMW07 (9,800 mg/L) is not presented with bold font; correct the error in the revised Report. In addition, the figures (Figures 5-1, 5-2, and 5-13 through 5-16) that present all of the anion concentrations are included in the Report; however, a discussion regarding the findings for bromide, chloride, fluoride, phosphate, and sulfate was not provided. Provide the discussion in the revised Report.

**10. Section 5.2.3, Perchlorate, lines 30-33, page 5-3 in the January to June 2021 Report, and Section 5.2.3, Perchlorate, lines 34-36, page 5-3 in the July through December 2021 Report**

**Permittee Statements:** “Samples collected in three alluvial monitoring wells TMW01 (270 µg/L), TMW31S (520 µg/L), and TMW39S (700 µg/L), and eight bedrock monitoring wells TMW30 (510 µg/L), TMW31D (890 µg/L), TMW32 (400 µg/L), TMW40D (230 µg/L), TMW48 (850 µg/L), TMW49 (320 µg/L), TMW51 (670 µg/L), and TMW64 (50 µg/L), exceeded the EPA MCL.”

and,

“[E]ight bedrock monitoring wells TMW30 (400 µg/L), TMW31D (860 µg/L), TMW32 (410 µg/L), TMW40D (230 µg/L), TMW48 (800 µg/L), TMW49 (230 µg/L), TMW51 (520 µg/L), and TMW64 (54 µg/L), exceeded the screening level.”

**NMED Comment:** Well TMW64 was installed in 2019 to specifically delineate the eastern extent of the bedrock perchlorate plume. Since the perchlorate concentrations in the groundwater samples collected from TMW64 consistently exceed the screening level of 14 µg/L, the eastern extent of the bedrock perchlorate plume remains unknown. Propose to submit a work plan to delineate the eastern extent of the bedrock perchlorate plume in the revised Reports.

**11. Section 5.2.5, Other Organic Compounds, lines 35-36, page 5-4 in the January through June 2021 Report, and Section 5.2.5, Other Organic Compounds, lines 28-30, page 5-4 in the July through December 2021 Report**

**Permittee Statements:** "Three bedrock wells also had detections of TPH DRO: TMW50 (51 J µg/L), TMW53 (150 J µg/L), and TMW58 (58 J µg/L)."

and,

"TPH-DRO was detected in six alluvial wells and three bedrock wells above the selected screening level. TPH-GRO was detected in two alluvial wells and one bedrock well above the selected screening level."

**NMED Comment:** TPH was detected in the groundwater samples collected from the new bedrock wells that were installed in 2019. TPH is considered a contaminant of concern (COC) unless proven otherwise. Accordingly, the Permittee must submit groundwater samples from the new wells where TPH-DRO/GRO were detected for TPH-DRO/GRO, VOC, and SVOC analyses, in addition to the other specific analyses required for each well, during the upcoming groundwater periodic monitoring events. No revision is necessary to the Reports.

**12. Section 5.2.5, Other Organic Compounds, line 37, page 5-4 in the January through June 2021 Report, and Section 5.2.5, Other Organic Compounds, line 36, page 5-4 in the July through December 2021 Report**

**Permittee Statement:** "Detections of SVOCs are associated with historical releases of explosive compounds."

**NMED Comment:** Some semi-volatile organic compounds (SVOCs) previously detected at the site (e.g., bis(2-ethylhexyl)phthalate, naphthalene) are not associated with releases of explosive compounds. Some SVOC detections are associated with other releases or causes (e.g., contamination caused by materials used for groundwater sampling). Clarify the statement or remove the statement from the revised Reports.

**13. Section 5.2.5, Other Organic Compounds, lines 40-42, page 5-4 in the January through June 2021 Report, and Section 5.2.5, Other Organic Compounds, lines 38-39, page 5-4 in the July through December 2021 Report**

**Permittee Statements:** "1,4-Dioxane was analyzed using EPA Method 8270 SIM. There were no detections of 1,4-Dioxane during the April 2021 sampling event. The analytical results are presented in Table 5-7."

and,

"1,4-Dioxane was analyzed using EPA Method 8270 SIM. There were no detections of 1,4-Dioxane during the October 2021 sampling event. The analytical results are presented in Table 5-7."

**NMED Comment:** According to Table 5-7, *Summary of Dioxane-1,4 Analytical Results*, only 4 wells (MW27 and MW37 through MW39) were sampled for 1,4-dioxane in April and October 2021. All 35 new wells should have been sampled and analyzed for 1,4-dioxane in addition to all other analytes specific to the wells in April and October 2021. Refer to Comment 4 above. Clearly state that the Permittee did not conduct 1,4-dioxane analysis for samples collected from the 32 new wells in 2021 and that the required 1,4-dioxane analysis will be conducted in the upcoming groundwater periodic monitoring events in the revised Reports.

**14. Section 5.2.6, Metals, lines 15-18, page 5-5 in the January through June 2021 Report, and Section 5.2.6, Metals, lines 12-15, page 5-5 in the July through December 2021 Report**

**Permittee Statement:** "Total metals including aluminum, arsenic, beryllium, iron, manganese, chromium, lead, nickel, and selenium were detected in multiple groundwater samples above screening levels. Dissolved arsenic, iron, manganese, and selenium were detected in multiple groundwater samples above groundwater screening levels."

**NMED Comment:** Some explosives handled at the facility may have been formulated with metals (e.g., barium, aluminum). In this case, since explosive compounds have been released at the facility, metals formulated for explosives may have also been released to the environment. The concentrations of explosive compounds in soil or groundwater samples may correlate with those of the metals. An evaluation of such correlation and discussion associated with the evaluation was previously required by NMED to be presented under a separate cover. This comment serves as a reminder only. No revision is required to the Reports.

**15. Section 5.3, Variances from the Work Plan, lines 23-25 and 27-28, page 5-5 in the January through June 2021 Report, and Section 5.3, Variances from the Work Plan, lines 20-22 and 24-25, page 5-5 in the July through December 2021 Report**

**Permittee Statements:** "Monitoring well FW35 has been dry since October 2015, MW18S has been dry since installation in 1994, well MW22S has been dry since April 2016."  
and,  
"Water levels will be monitored at these locations to determine whether sampling can resume, or the wells should be abandoned."

**NMED Comment:** Well FW35 was screened from 10 to 30 feet below ground surface (bgs) according to Table 2-1, *Northern Area Groundwater Well Construction Details*. Depth to water (DTW) readings collected from well MW35, which was installed in 2019 to replace well FW35, consistently exceed 30 feet bgs according to Table 4-1. Similarly, well MW18S was screened from 27 to 37 feet bgs according to Table 2-1. DTW readings collected from well MW18D, which was installed adjacent to well MW18S, consistently exceed 37 feet bgs according to Table 4-1. Similarly, well MW22S was screened from 31 to 41 feet bgs

according to Table 2-1. DTW readings collected from well MW22D, which was installed adjacent to well MW22S, consistently exceed 41 feet bgs according to Table 4-1. Accordingly, wells FW35, MW18S and MW22S are unlikely to retain any groundwater in the future. Propose to submit a work plan to abandon wells FW35, MW18S and MW22S in the revised Reports.

**16. Section 5.4, Data Quality Exceptions, lines 36-37, page 5-5 in the January through June 2021 Report, and Section 5.4, Data Quality Exceptions, lines 29-30, page 5-5 in the July through December 2021 Report**

**Permittee Statement:** “There are a total of 42 data quality exception compounds where the Limit of Detection (LOD), Limit of Quantitation (LOQ), or both, exceed the screening level as shown in Table 3-1.”

**NMED Comment:** According to Table 3-1 (Groundwater Screening Levels, Detection Limits, and Control Limits) of the July through December 2021 Report, the LOQ and LOD for nitrite are 0.1 and 0.06 mg/L, respectively. LOQs and LODs are specific to each individual sample analysis; therefore, it is inappropriate and inaccurate to include these values in a table meant to provide information for all analyses. Multiple LOD values shown on Table 5-2 exceed the screening level of 1 mg/L. For example, the nitrite concentration in the groundwater sample collected from well BGMW11 is recorded as <6 mg/L in the July through December 2021 Report. Similarly, the nitrite concentration in the groundwater samples collected from well BGMW13D is recorded as <2.4 mg/L in the July through December 2021 Report. Nitrite must be included as a data quality exception compound in the revised Reports. Remove individual analysis-specific information from the table and revise all applicable sections (e.g., Sections 5.4 and 5.2.1) and tables of the Reports, accordingly.

**17. Section 6.0, Summary, lines 29-31, page 6-1 in the January through June 2021 Report, and Section 6.0, Summary, lines 36-38, page 6-1 in the July through December 2021 Report**

**Permittee Statement:** “The nitrate bedrock plume may have originated from the former TNT Leaching Beds (SWMU 1) while the collocated perchlorate plume may have originated from the Building 528 Complex (SWMU 27).”

**NMED Comment:** Section 5.2.1 states, “[t]he highest groundwater nitrate concentration in the bedrock groundwater unit was found south of the Workshop Area in monitoring well TMW30 (13.0 mg/L).” Well TMW30 is located hydraulically upgradient of the Workshop Area; therefore, the nitrate bedrock plume may not have originated from the former TNT Leaching Beds. The Permittee’s December 19, 2022 *Final Northern Area Groundwater RCRA Facility Investigation Report, Revision 2, Response to Notice of Disapproval* states, “the bedrock nitrate plume is significantly smaller and hydraulically upgradient and is only incrementally intersecting the significantly larger downgradient alluvial plume. The

hydraulically upgradient orientation of the bedrock plume reduces the potential for migration from the alluvial aquifer to an upgradient location.” The bedrock nitrate contamination may have originated from unknown releases to the exposed bedrock at the building 528 Complex area. Revise the statement accordingly in the revised Reports.

**18. Table 5-6, Summary of TPH and SVOC Analytical Results in the July through December 2021 Report**

**NMED Comment:** Since the extent of the TPH-DRO plumes is solely evaluated by the reported analytical results, the appearance of the plumes appears to drastically change in each sampling period. For example, the extent of the plume in April 2021 is significantly larger than that of October 2021 according to Figures 5-9 in the Reports. Such presentation of the plume extent is not only inaccurate but also misleading. Non-detects (ND) due to a higher dilution rate causing to increase LOD for a particular analysis are acceptable; however, they should be called out as data quality exceptions in all figures, tables, and discussions. Unless analytical capability allows for better detection limits, the extent of the plumes must not be shown on the figures. Revise the Reports accordingly.

**19. Figures 5-3, Northern Area Explosives in Alluvial Groundwater – April and October 2021**

**NMED Comment:** Although the RDX plume contours exceeding the concentration of 9.7 µg/L are presented in the figures, well TMW40S is depicted outside of the plumes because a groundwater sample has not been collected from the well since April 2020. However, the highest RDX concentrations have always been recorded in the groundwater samples collected from well TMW40S (e.g., 890 µg/L in April 2020). Accordingly, it is reasonable to assume that RDX concentrations in the vicinity of well TMW40S exceed the screening level of 9.7 µg/L and well TMW40S must be included within the boundary of the RDX plumes. Revise the figures accordingly in the revised Reports.

**20. Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater – April 2021**

**NMED Comment:** The TPH-DRO concentration in the groundwater sample collected from MW34 is depicted as 110 J µg/L in the figure and exceeds the screening level of 16.7 µg/L. The western/southwestern extent of the TPH-DRO plume remains undefined because the groundwater sample collected from well TMW25 was not analyzed for TPH-DRO.

In addition, the TPH-DRO concentrations in the groundwater samples collected from wells TMW08 and TMW61 are depicted as 200 J and 74 J µg/L, respectively, in the figure and exceed the screening level of 16.7 µg/L. The northern/northeastern extent of the TPH-DRO plume remains undefined because the groundwater samples collected from wells TMW23 and TMW24 were not analyzed for TPH-DRO.

Furthermore, the TPH-DRO concentration in the groundwater samples collected from

MW36D and MW36S are depicted as 77 J and 120 J  $\mu\text{g/L}$ , respectively, in the figure and exceed the screening level of 16.7  $\mu\text{g/L}$ . The extent of the separate TPH-DRO plume remains undefined because the groundwater sample collected from well MW23 was not analyzed for TPH-DRO.

Propose to collect groundwater samples from wells MW23, TMW23, TMW24, and TMW25 for TPH-DRO analysis in the upcoming Interim Northern Area Groundwater Monitoring Plan.

## 21. Figure 5-9, Northern Area TPH-DRO in Alluvial Groundwater – October 2021

**NMED Comment:** The TPH-DRO concentrations in the groundwater samples collected from wells MW36S and BGMW13S are depicted as 82 J and 78 J  $\mu\text{g/L}$ , respectively, in the figure and exceed the screening level of 16.7  $\mu\text{g/L}$ . The TPH-DRO plume may be contiguous between wells MW36S and BGMW13S. However, since well MW24, located between the two wells, was not sampled for TPH-DRO, the extent of the separate plume remains unknown. Propose collecting groundwater sample from well MW24 for TPH-DRO analysis in the upcoming Interim Northern Area Groundwater Monitoring Plan.

The Permittee must submit revised Reports that address all comments contained in this letter. Two hard copies and an electronic version of each 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 each Report have been made. The revised Reports must each be accompanied by a response letter that details where all revisions have been made to each Reports, cross-referencing NMED's numbered comments. The revised Reports must be submitted to NMED no later than **December 31, 2023**.

Should you have any questions, please contact Michiya Suzuki of my staff at (505) 690-6930.

Sincerely,

**Ricardo Maestas**

Digitally signed by Ricardo  
Maestas  
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Ricardo Maestas  
Acting Chief  
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB  
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Mr. Cushman  
May 23, 2023  
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K. Noble, Pueblo of Zuni  
A. Whitehair, Southwest Region BIA  
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