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Certified Mail - Return Receipt Requested

October 19, 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 REPORT
JANUARY THROUGH JUNE 2022
FORT WINGATE DEPOT ACTIVITY
MCKINLEY COUNTY, NEW MEXICO
EPA ID# NM6213820974
HWB-FWDA-23-003**

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 2022* (Report), dated March 2023. NMED has reviewed the Report, and hereby issues this Disapproval with the following comments.

GENERAL COMMENTS

1. Inaccuracies/Discrepancies

NMED Comment: The Report contains multiple inaccuracies and discrepancies similar to the 2021 groundwater periodic monitoring reports. The Permittee has again failed to provide NMED with an accurate groundwater monitoring report. The quality of the document is unacceptable and indicates an overall lack of quality assurance/quality control. Examples are listed as follows:

- a) **Executive Summary, lines 13-14, page ES-3:** The text states, "[t]hree alluvial wells and three bedrock wells also had detections above the TPH-DRO screening level."

SCIENCE | INNOVATION | COLLABORATION | COMPLIANCE

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According to Table 5-6, *Summary of TPH and SVOC Analytical Results*, the concentrations of TPH-DRO were detected above the screening level in the groundwater samples collected from alluvial wells BGMW13D, BGMW13S, MW01, MW20, MW32, TMW07, TMW21, and TMW34 (8 alluvial wells) and bedrock wells TMW50, and TMW53 (2 bedrock wells) in April 2022. Resolve the discrepancy in the revised Report.

- b) **Section 1.2, Hydrogeologic Setting, line 19, page 1-3:** The text states, “[t]he depth to water (DTW) at FWDA generally ranges between 17- and 79-feet bgs.” According to Table 4-1, *Northern Area Groundwater Elevations*, the DTW readings in well BGMW03, MW23, and MW36D are recorded as 14.93, 14.35, and 14.62 feet below ground surface (bgs), respectively. Resolve the discrepancy in the revised Report.
- c) **Section 1.2, Hydrogeologic Setting, line 21-22, page 1-3:** The text states, “[i]n the Northern Area bedrock aquifer, DTW ranged from 17- to 65-feet bgs, except for well BGMW08, where the DTW in April 2021 was measured at 133.91-feet bgs.” This Report pertains to the January through June 2022 groundwater monitoring activities. The data collected in April 2021 is irrelevant. Correct the text to include the relevant data collected in January through June 2022 in the revised Report.
- d) **Section 5.2.1, Anions, lines 5-6, page 5-2:** The text states, “[n]itrate concentrations in 20 out of 67 monitoring wells analyzed in the alluvial aquifer exceeded the USEPA MCL/NM WQCC screening level of 10 mg/L.” According to Table 5-2, *Summary of Inorganic Anions Analytical Results*, the nitrate concentrations in the groundwater samples collected from 19 rather than 20 alluvial wells exceeded the nitrate screening level in April 2022. Resolve the discrepancy in the revised Report.
- e) **Section 5.2.4, Volatile Organic Compounds, lines 3-5 and 7, page 5-4:** The text states, “[t]he following VOCs were detected in groundwater samples collected from alluvial and bedrock monitoring wells during the April 2022 groundwater sampling event (the maximum detected concentrations are shown in parentheses below and bold values exceed the selected screening levels). • Acetone (6.7 J µg/L in alluvial well MW18D).” According to Table 5-5, *Summary of VOC Analytical Results*, the acetone concentration in the groundwater sample collected from well MW35 is recorded as 8.9 J µg/L, which exceeds the stated maximum detected concentration of 6.7 µg/L in well MW18D. Resolve the discrepancy in the revised Report.
- f) **Section 5.2.5, Other Organic Compounds, lines 25-26, page 5-4:** The text states, “TPH-DRO was detected in six alluvial wells and one bedrock well above the selected screening level.” According to Table 5-6, *Summary of TPH and SVOC Analytical Results*, the TPH-DRO concentrations in the groundwater samples collected from 9 rather than 6 alluvial wells exceeded the screening level. Similarly, the TPH-DRO

concentrations in the groundwater samples collected from two (2) rather than one (1) bedrock wells exceeded the screening level in April 2022. Resolve the discrepancy in the revised Report.

- g) Figure 4-1, Northern Area Alluvial Groundwater Contour Map – January 2022:** The groundwater elevation in well MW24 is depicted as 6,635 feet in the figure, while it is reported as 6,635.60 (6,636) feet during the January 2022 gauging event in Table 4-1. Resolve the discrepancy in the revised Report.
- h) Figure 4-1, Northern Area Alluvial Groundwater Contour Map – January 2022:** The groundwater elevation in well TMW40S is depicted as 6,645 feet in the figure; however, it is depicted on the 6,655 feet contour line. Resolve the discrepancy in the revised Report.
- i) Figure 4-2, Northern Area Alluvial Groundwater Contour Map – April 2022:** The groundwater elevation in well TMW40S is depicted as 6,644 feet in the figure. However, it is depicted on the 6,655 feet contour line. Resolve the discrepancy in the revised Report.
- j) Figure 4-2, Northern Area Alluvial Groundwater Contour Map – April 2022:** The groundwater elevation in well TMW43 is depicted as 6,644 feet in the figure, while it is reported as 6,644.60 (6,645) feet during the April 2022 gauging event in Table 4-1. Resolve the discrepancy in the revised Report.
- k) Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – April 2022:** The nitrite concentration in the groundwater sample collected from well MW03 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.
- l) Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – April 2022:** The nitrate concentration in the groundwater sample collected from well MW23 is depicted as <0.062 J mg/L in the figure, while it is reported as 0.062 J mg/L in Table 5-2. Correct the typographical error in the revised Report.
- m) Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – April 2022:** The nitrate concentration in the groundwater sample collected from well MW24 is depicted as <0.048 J mg/L in the figure, while it is reported as 0.048 J mg/L in Table 5-2. Correct the typographical error in the revised Report.
- n) Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – April 2022:** The nitrate concentration in the groundwater sample collected from well MW26 is depicted as 1.6 mg/L in the figure, while it is reported as 1.8 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 – April 2022:** The nitrite concentration in the groundwater sample collected from well MW26 is depicted as <0.06 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.
- p) Figure 5-1, Northern Area Nitrate and Nitrite in Alluvial Groundwater – April 2022:** The nitrite concentration in the groundwater sample collected from well MW34 is depicted as <0.06 mg/L in the figure, while it is reported as <0.60 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 – April 2022:** The nitrite concentration in the groundwater sample collected from well TMW62 is depicted as <0.0.6 mg/L in the figure, while it is reported as <0.06 mg/L in Table 5-2. Correct the typographical error in the revised Report.
- r) Figure 5-2, Northern Area Nitrate and Nitrite in Bedrock Groundwater – April 2022:** The nitrate concentration in the groundwater sample collected from well BGMW09 is depicted as 1.2 mg/L in the figure. According to Table 5-2, two samples were separately collected on April 12, 2022; therefore, one must be identified as a duplicate sample. The nitrate concentrations were recorded as 1.3 and 1.2 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, or discussions. The Permittee has been repeatedly advised of this requirement; failure to follow NMED direction constitutes noncompliance and may result in an enforcement action. Revise the figure to report the higher nitrate concentration.
- s) Figure 5-3, Northern Area Bromide and Chloride in Alluvial Groundwater – April 2022:** The bromide concentration in the groundwater sample collected from well MW03 is depicted as 0.62 mg/L in the figure. According to Table 5-2, two samples were separately collected on April 14, 2022; therefore, one must be identified as a duplicate sample. The bromide concentrations were recorded as 0.64 and 0.62 mg/L in the table. The Permittee must always report the higher concentration (0.64 mg/L) of a duplicate pair in all figures, tables, or discussions (see Comment 1r above). Revise the figure to report the higher bromide concentration.
- t) Figure 5-3, Northern Area Bromide and Chloride in Alluvial Groundwater – April 2022:** The chloride concentration in the groundwater sample collected from well MW03 is depicted as 300 mg/L in the figure. According to Table 5-2, two samples were separately collected on April 14, 2022; therefore, one must be identified as a duplicate sample. The chloride concentrations were recorded as 370 and 300 mg/L in the table. The Permittee must always report the higher concentration (370 mg/L)

of a duplicate pair in all figures, tables, or discussions (see Comment 1r above).
Revise the figure to report the higher chloride concentration.

- u) **Figure 5-3, Northern Area Bromide and Chloride in Alluvial Groundwater – April 2022:** The chloride concentration in the groundwater sample collected from well MW24 is depicted as 120 mg/L in the figure. According to Table 5-2, two samples were separately collected on April 12, 2022; therefore, one must be identified as a duplicate sample. The chloride concentrations were recorded as 120 and 160 mg/L in the table. The Permittee must always report the higher concentration (160 mg/L) of a duplicate pair in all figures, tables, or discussions (see Comment 1r above).
Revise the figure to report the higher chloride concentration.
- v) **Figure 5-3, Northern Area Bromide and Chloride in Alluvial Groundwater – April 2022:** The bromide concentration in the groundwater sample collected from well MW38 is depicted as 0.926 mg/L in the figure, while it is reported as 0.96 mg/L in Table 5-2. Resolve the discrepancy in the revised Report.
- w) **Figure 5-5, Northern Area Fluoride and Phosphate in Alluvial Groundwater – April 2022:** The phosphate concentration in the groundwater sample collected from well BGMW13D is depicted as 0.47 J mg/L in the figure. According to Table 5-2, two samples were separately collected on April 21, 2022; therefore, one must be identified as a duplicate sample. The phosphate concentrations were recorded as 0.47 J and 0.53 mg/L in the table. The Permittee must always report the higher concentration (0.53 mg/L) of a duplicate pair in all figures, tables, or discussions (see Comment 1r above).
Revise the figure to report the higher phosphate concentration.
- x) **Figure 5-5, Northern Area Fluoride and Phosphate in Alluvial Groundwater – April 2022:** The phosphate concentration in the groundwater sample collected from well MW24 is depicted as 0.39 J mg/L in the figure. According to Table 5-2, two samples were separately collected on April 12, 2022; therefore, one must be identified as a duplicate sample. The phosphate concentrations were recorded as 0.39 J and 0.45 J mg/L in the table. The Permittee must always report the higher concentration (0.45 J mg/L) of a duplicate pair in all figures, tables, or discussions (See Comment 1r above).
Revise the figure to report the higher phosphate concentration.
- y) **Figure 5-5, Northern Area Fluoride and Phosphate in Alluvial Groundwater – April 2022:** The phosphate concentration in the groundwater sample collected from well MW33 is depicted as <1.2 mg/L in the figure, while it is reported as <1.25 mg/L in Table 5-2. The laboratory report included in Appendix D-2 indicates that the LOD for the analysis is 1.2 mg/L. Resolve the discrepancy in the revised Report.

- z) **Figure 5-5, Northern Area Fluoride and Phosphate in Alluvial Groundwater – April 2022:** The phosphate concentration in the groundwater sample collected from well SMW01 is depicted as <1.2 mg/L in the figure, while it is reported as <1.25 mg/L in Table 5-2. The laboratory report included in Appendix D-2 indicates that the LOD for the analysis is 1.2 mg/L. Resolve the discrepancy in the revised Report.
- aa) **Figure 5-5, Northern Area Fluoride and Phosphate in Alluvial Groundwater – April 2022:** The fluoride concentration in the groundwater sample collected from well TMW34 is depicted as 0.37 mg/L in the figure. According to Table 5-2, two samples were separately collected on April 19, 2022; therefore, one must be identified as a duplicate sample. The fluoride concentrations were recorded as 0.37 and 0.38 mg/L in the table. The Permittee must always report the higher concentration (0.38 mg/L) of a duplicate pair in all figures, tables, or discussions (see Comment 1r above). Revise the figure to report the higher fluoride concentration.
- bb) **Figure 5-8, Northern Area Sulfate in Bedrock Groundwater – April 2022:** The sulfate concentration in the groundwater sample collected from well TMW50 is depicted as 570 mg/L in the figure. According to Table 5-2, two samples were separately collected on April 13, 2022; therefore, one must be identified as a duplicate sample. The sulfate concentrations were recorded as 570 and 620 mg/L in the table. The Permittee must always report the higher concentration (620 mg/L) of a duplicate pair in all figures, tables, or discussions (see Comment 1r above). Revise the figure to report the higher sulfate concentration. The extent of the sulfate plume presenting exceedances of the sulfate screening level of 600 mg/L must also be revised to include well TMW50 in the figure.
- cc) **Figure 5-11, Northern Area Perchlorate in Alluvial Groundwater – April 2022:** The perchlorate concentration in the groundwater sample collected from well TMW02 is depicted as 6.5 µg/L in the figure. According to Table 5-4, two samples were separately collected on April 15, 2022; therefore, one must be identified as a duplicate sample. The perchlorate concentrations were recorded as 7.19 and 6.52 µg/L in the table. The Permittee must always report the higher concentration (7.2 µg/L) of a duplicate pair in all figures, tables, or discussions (see Comment 1r above). Revise the figure to report the higher perchlorate concentration.
- dd) **Figure 5-11, Northern Area Perchlorate in Alluvial Groundwater – April 2022:** The perchlorate concentration in the groundwater sample collected from well TMW27 is depicted as <0.20 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.
- ee) **Figure 5-11, Northern Area Perchlorate in Alluvial Groundwater – April 2022:** The perchlorate concentration in the groundwater sample collected from well TMW41 is

depicted as 14 µg/L in the figure, while well TMW41 is depicted outside of the plume boundary showing the perchlorate screening level of 14 µg/L. Resolve the discrepancy in the revised Report.

- ff) **Figure 5-13, Northern Area VOCs in Alluvial Groundwater – April 2022:** The volatile organic compound (VOC) concentrations in the groundwater sample collected from well MW35 is depicted as “not detected (ND)” in the figure, while the concentration of acetone is reported as 8.9 J µg/L in Table 5-5. Resolve the discrepancy in the revised Report.
- gg) **Figure 5-15, Northern Area TPH-DRO in Alluvial Groundwater – April 2022:** The total petroleum hydrocarbons as diesel range organics (TPH-DRO) concentration in the groundwater sample collected from well BGMW13D is depicted as <95 µg/L in the figure, while it is reported as 120 J µg/L in Table 5-6. Resolve the discrepancy in the revised Report.
- hh) **Figure 5-15, Northern Area TPH-DRO in Alluvial Groundwater – April 2022:** The TPH-DRO concentration in the groundwater sample collected from well MW34 is depicted as <100 µg/L in the figure, while it is reported as <110 µg/L in Table 5-6. Resolve the discrepancy in the revised Report.
- ii) **Figure 5-15, Northern Area TPH-DRO in Alluvial Groundwater – April 2022:** The TPH-DRO concentration in the groundwater sample collected from well TMW62 is depicted as <100 µg/L in the figure, while it is reported as <95 µg/L in Table 5-6. Resolve the discrepancy in the revised Report.
- jj) **Figure 5-16, Northern Area TPH-DRO in Bedrock Groundwater – April 2022:** The TPH-DRO concentration in the groundwater sample collected from well TMW50 is depicted as <100 µg/L in the figure, while it is reported as 260 J µg/L in Table 5-6. Resolve the discrepancy in the revised Report.
- kk) **Table 5-4, Summary of Perchlorate Analytical Results, page 6 of 9:** The perchlorate concentration in the groundwater sample collected from well TMW41 is recorded as 14 µg/L on the table; however, the concentration is not presented with bold font to indicate exceedance of respective screening level. Revise the table to present the concentration with bold font for accuracy.

The Permittee’s failures to provide an accurate document resulted 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 Report to address the large number of inaccuracies and discrepancies.

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

NMED Comment: NMED's November 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. This comment was previously provided in separate correspondence and only serves as a reminder.

3. Recurrence of Previous Issues

NMED Comment: The Report contains multiple recurrences of the same issues that NMED identified during previous groundwater monitoring report reviews. Most of these issues were resolved in the Permittee's previous responses; therefore, the issues should have been eliminated from the new Reports. Review and address NMED's previous comments, where applicable, and address them in the revised Report.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

SPECIFIC COMMENTS

4. Section 1.0, Introduction, lines 25-27, page 1-1

Permittee Statement: "Starting in year 2021 for four consecutive events, the 35 new wells were 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 MW39 during the April 2022 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 32 new wells in April 2022.

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 April 2022 sampling event. 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 not yet been conducted.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

5. Section 2.3, Data Management and Validation, lines 33-35, page 2-3

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.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

6. Section 4.1.2, Northern Area Bedrock Groundwater System, lines 4-7, page 4-2, and Section 6.0, Summary, lines 24-26, page 6-1

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 Report.

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 indicate groundwater flow directions beneath the Workshop Area. The groundwater flow direction beneath the Workshop Area significantly varies between the wells. 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.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

7. Section 4.1.2, Northern Area Bedrock Groundwater System, lines 14-17, page 4-2

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 the new bedrock wells proposed in the referenced work plan were already installed prior to this monitoring event 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 Report.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

8. Section 5.1, Water-Quality Parameters, lines 22-24 and 39-41, page 5-1

Permittee Statements: "Measured ORP values (<~200 mV) indicate reducing conditions are present in groundwater in some areas of FWDA." and, "DO values in the alluvial aquifer ranged from 0.00 in multiple wells to 7.00 milligrams per liter (mg/L) in well MW24; and in the bedrock aquifer, the range was 0.00 in multiple wells to 7.99 mg/L in well TMW14A."

NMED Comment: According to Table 5-1, *Stable Groundwater Parameters*, the oxidation-reduction potential (ORP) reading in well TMW14A is recorded as -228 mV, which is the second lowest among all wells. The ORP reading indicates that the groundwater in well TMW14A is likely to be in reducing conditions. However, the dissolved oxygen (DO) concentration in well TMW14A is the highest among all wells (i.e., 7.99 mg/L). The DO concentration indicates that the groundwater in well TMW14 is likely to be in oxidizing conditions. Provide an explanation for the contradictory readings in well TMW14A in the revised Report.

9. Section 5.2.1, Anions, lines 8-11, page 5-2

Permittee Statement: "In addition, nitrate was detected at a concentration of 15 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 recorded below the applicable screening level of 10 mg/L. 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 be accumulating near the well and seeping into its casing. 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.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

10. Section 5.2.1, Anions, lines 22-30, page 5-2

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 April 2022 groundwater sampling event (the maximum detected concentrations are shown in parentheses below and bold values exceed the selected screening levels).

- Bromide (9.4 J mg/L at bedrock monitoring well BMW07) (Figures 5-3 and 5-4)
- Chloride (14,000 mg/L at bedrock monitoring well BMW07) (Figures 5-3 and 5-4)
- Fluoride (**3.6** mg/L at alluvial monitoring well FW31) (Figures 5-5 and 5-6)
- Phosphate (0.32 mg/L at alluvial monitoring well TMW28) (Figures 5-5 and 5-6)

- Sulfate (**9,000 mg/L** at alluvial monitoring well TMW08) (Figures 5-7 and 5-8)”

NMED Comment: The chloride concentration at bedrock monitoring well BGMW07 (14,000 mg/L) is not presented with bold font. The phosphate concentration in well MW18D is recorded as 2.4 J mg/L, which is higher than that of TMW28. Correct the errors in the revised Report. In addition, the figures 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.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

11. Section 5.2.2, Explosives Compounds, lines 9-10, page 5-3

Permittee Statement: “The explosives compound RDX was detected in five alluvial wells (BGMW11, TMW03, TMW23, TMW59 and TMW62) above the screening level in groundwater samples from the April 2022 monitoring event.”

NMED Comment: The RDX concentration in well BGMW11 is depicted as 23 µg/L in Figure 5-9 and exceeded its respective screening level of 9.7 µg/L. According to Table 5-3, RDX was not previously detected in well BGMW11. Provide a discussion regarding the RDX detection in well BGMW11 in the subsequent groundwater periodic monitoring report.

12. Section 5.2.3, Perchlorate, lines 28-32, page 5-3

Permittee Statement: “Perchlorate was detected in 11 groundwater monitoring wells in the Northern Area above the USEPA RSL of 14 µg/L. Samples collected in three alluvial monitoring wells TMW01 (253 J µg/L), TMW31S (619 µg/L), and TMW39S (790 µg/L), and eight bedrock monitoring wells TMW30 (454 µg/L), TMW31D (874 µg/L), TMW32 (405 µg/L), TMW40D (262 µg/L), TMW48 (752 µg/L), TMW49 (114 µg/L), TMW51 (715 µg/L), and TMW64 (56 µg/L), exceeded the screening level.”

NMED Comment: The perchlorate concentration in alluvial well TMW41 is depicted as 14 µg/L in Figure 5-11 and must be considered as exceedance of the screening level. Revise the Report accordingly. In addition, 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 Report.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

13. Section 5.4, Data Quality Exceptions, lines 27-28, page 5-5

Permittee Statement: "There are a total of 42 data quality exception compounds where the limit of detection (LOD), 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*, 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. 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 and tables of the Report, accordingly.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

14. Section 6.0, Summary, lines 29-30, page 6-1

Permittee Statement: "Nitrate, explosives, perchlorate, one VOC, TPH-DRO, TPH-GRO, chloride, sulfate, and metals were detected in groundwater samples at concentrations above their associated groundwater screening levels."

NMED Comment: Fluoride was also detected in groundwater samples at concentrations above the respective groundwater screening level. Revise the Report for accuracy.

15. Section 6.0, Summary, lines 36-38, page 6-1

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 (15 mg/L)." Well TMW30 is located hydraulically upgradient of the Workshop Area;

therefore, the nitrate bedrock plume may not have originated, or entirely 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 Report.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

16. Table 4-1, Northern Area Groundwater Elevations, January through June 2022, page 35 of 45

NMED Comment: According to Table 4-1, the groundwater elevations for well BGMW08 measured in January and April 2022 are recorded as 6,516.47 and 6,545.76 feet, respectively. The groundwater elevation measured in April 2022 was 29.29 feet higher than that measured in January 2022. The trend indicates that the groundwater elevations measured in April are always notably higher than those measured in January except 2019. For example, the groundwater elevations for well BGMW08 measured in January and April 2021 are recorded as 6,516.87 and 6,547.80 feet, respectively. The groundwater elevation measured in April 2021 was 30.93 feet higher than that measured in January 2021. The groundwater elevations for the same well measured in January and April 2020 are recorded as 6,523.97 and 6,557.32 feet, respectively. The groundwater elevation measured in April 2020 was 33.35 feet higher than that measured in January 2020.

Similarly, the trend indicates that the groundwater elevations measured in October are always notably higher than those measured in July. For example, the groundwater elevations measured in July and October 2021 are recorded as 6,517.63 and 6,543.96 feet, respectively. The groundwater elevation measured in October 2021 was 26.33 feet higher than that measured in July 2021. The groundwater elevations measured in July and October 2020 are recorded as 6,520.22 and 6,544.01 feet, respectively. The groundwater elevation measured in October 2020 was 23.79 feet higher than that measured in July 2020.

The groundwater elevations measured in January and July are generally lower than those measured in April and October. Although the Permittee's May 24, 2021 *Final Groundwater Periodic Monitoring Report, January through June 2019, Revision 2* states, "[w]ell BGMW08 is being proposed for abandonment due to improper construction causing anomalous data," the fluctuation observed in groundwater elevations in well BGMW08 may reflect seasonal

groundwater fluctuations. Investigate whether this trend is applicable to other wells, evaluate the cause of seasonal fluctuation, and provide a discussion regarding the findings in a response letter.

17. Table 5-6, Summary of TPH and SVOC Analytical Results

NMED Comment: Since the extent of the TPH-DRO plumes is solely evaluated by the reported analytical results, the shapes of the plumes appear to drastically change in each sampling period. Such presentation of the plume extent is not only inaccurate but also misleading. Non-detects (ND) due to high dilution rates causing an increase in the LOD for a particular analysis are acceptable; however, they should be called out as data quality exceptions in all figures, tables, and discussions. Unless an analytical laboratory and methods allowing for better detection limits are utilized, the extent of the TPH plume must not be depicted in figures. Revise the Report accordingly.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

18. Figures 5-9, Northern Area Explosives in Alluvial Groundwater – April 2022

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 plume. Revise the figure accordingly in the revised Report.

This comment was provided for the 2021 groundwater periodic monitoring reports; however, the comment was not addressed in the Report since the Permittee had not received the comments prior to the submittal of this Report. Accordingly, NMED hereby provides this comment again.

Mr. Cushman
October 19, 2023
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The Permittee must submit the revised Report that addresses all comments contained in this letter. Two hard copies and an electronic version of the revised Report must be submitted to the NMED. The Permittee must also include a redline-strikeout version in electronic format showing where all revisions to the Report have been made. The revised Report must be accompanied by a response letter that details where all revisions have been made to the Report, cross-referencing NMED's numbered comments. The revised Report 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
Date: 2023.10.19 09:38:45 -06'00'

Ricardo Maestas
Acting Chief
Hazardous Waste Bureau

cc: N. Dhawan, NMED HWB
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