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October 12, 2022

Brian D. Knight, Chief
Directorate of Public Works, Environmental Division
U.S Army White Sands Missile Range
Building 163 Springfield Street
White Sands Missile Range, New Mexico 88002-5000

**RE: DISAPPROVAL
2018 GROUNDWATER FREQUENT MONITORING REPORT
SWMUS 38 &39, HELSTF CONSTRUCTION LANDFILL
SWMU 143, HELSTF STORAGE YARD CHROMIUM SPILL SITE
SWMU 154, HELSTF SYSTEMIC DIESEL SPILL SITE
WHITE SANDS MISSILE RANGE, NEW MEXICO
EPA ID #NM 2750211235
HWB-WSMR-20-028**

Dear Mr. Knight,

The New Mexico Environment Department (NMED) has received the U.S. Army White Sands Missile Range (the Permittee) *2018 Groundwater Frequent Monitoring Report SWMUs 38 &39 HELSTF Construction Landfill, SWMU 143 HELSTF Storage Yard Chromium Spill Site, SWMU 154 HELSTF Systemic Diesel Spill Site* (Report), dated December 2020. NMED has reviewed the Report and hereby issues this Disapproval with the following comments.

1. Section 1.1 – Site Description, Page 1-2:

Permittee Statement: “Details regarding operational history and investigations for each SWMU are provided in the RCRA Facility Investigation documents (Sverdup, 1994; WTS, 2008; Arcadis, 2010).”

NMED Comment: Section 1.1 (Site Description) does not provide the required level of background detail for each SWMU. Appendix 7 (Reporting Requirements), Section 7.3.5 (Background) of the December 2009 Permit requires reports to include a background section that includes a brief summary of the possible sources of contamination, the history of releases or discharges of contamination, the known extent of contamination, and a general summary of the results of

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previous investigations including references to previous reports. Revise the Report to provide the required background information for each SWMU.

2. Section 1.2.1 – Type of Monitoring, Page 2-1:

Permittee Statement: “Stagnant water was purged at an ultra-low flow rate that was approximately equal to the rate of recharge of the well to ensure minimal drawdown (e.g., less than 100 mL per minute).”

NMED Comment: The Permittee’s statement is inconsistent with the field documentation in Appendix C (Data) which report purge rates greater than 100 mL per minute. Revise the Report to accurately state the groundwater purge rates as recorded in the field documentation sampling logs.

3. Section 3 – Regulatory Criteria, Page 3-1:

Permittee Statement: “The lower value of either the hazard index of 1.0 for non-carcinogens or cancer risk level of 10×10^{-5} for carcinogens is used. If the criterion is below the achievable laboratory limit of detection, then the screening level is considered to be the laboratory limit of quantitation.”

NMED Comment: Screening levels are not subject to change based on laboratory reporting limits. Analyses conducted with detection limits that are greater than applicable background, screening, and regulatory cleanup levels are considered data quality exceptions and the reasons for the elevated detection limits shall be reported to the NMED in accordance with Permit Appendix 5 (Investigation and Sampling Methods and Procedures), Section 5.3 (Chemical Analysis). Data quality exceptions that could potentially mask detections must be reported in the analytical data summary tables as specified by Permit Appendix 7 (Reporting Requirements), Section 7.4.11 (Tables) and the limit of detection must be the reported value for the sample. Revise the statement for accuracy.

4. Section 4.1 – Groundwater Measurements, Page 4-1:

Permittee Statement: “Water level measurements are presented in feet below the top of well casing; elevations are presented in feet above mean sea level. (Table 2 data are un-corrected for LNAPL, see Section 4.2.)”

NMED Comment: Table 1 (Monitoring Well Information) and Table 2 (Groundwater Depths and Elevations) report different top of casing elevations for multiple wells. The Permittee must verify the top of casing elevations for all monitoring wells at SWMUs 38, 39, 143, and 154. If the elevations cannot be verified, the Permittee must resurvey the wells to eliminate the discrepancies. The Permittee must also revise the Report text, tables, and figures to accurately report all reference elevations, groundwater elevations, and LNAPL elevations. Additionally, elevations must be corrected for LNAPL, if present.

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5. Section 5.1.2 – Inorganic Analytes, Regional, Page 5-2:

Permittee Statement: “Regional wells near the Construction Landfill (HMW-08, HMW-32, HMW-34, and HMW-59) showed low levels of chromium. Concentrations ranged from 0.00061 to 0.0483 mg/L, all below the regulatory criteria of 0.1 mg/L. Hexavalent chromium was not detected in the regional aquifer wells near the Construction Landfill.”

And

“Chloride exceeded the NMWQCC regulatory limit of 250 mg/L in HMW-08, HMW-32, HMW-34, HMW-35, and HMW-59; concentrations ranged from 718.00 to 1,800.00 mg/L during 2018. Sulfate also exceeded the NMWQCC regulatory limit of 600 mg/L at all five wells (ranging from 4940.00 to 7630.00 mg/L).”

NMED Comment: The Permittee analyzed for hexavalent chromium in groundwater using analytical test method E218.6. United States Environmental Protection Agency (EPA) documentation for method E218.6 indicates that overloading of the analytical column capacity with high concentrations of anionic species, especially chloride and sulfate, will cause a loss of hexavalent chromium in the analytical sample (Method 218.6: Determination of Dissolved Hexavalent Chromium in Drinking Water, Groundwater, and Industrial Wastewater Effluents by Ion Chromatography, Rev. 3.3. EPA, 1994). Ground water data from regional aquifer wells near the Construction Landfill demonstrate that both chloride and sulfate are present at high concentrations. As a result, it is likely that hexavalent chromium data are not representative of the actual concentrations in ground water at this site. The Permittee must determine if analytical method E218.6 is appropriate given the ground water conditions at HELSTF or consider total chromium concentrations to be equivalent to hexavalent chromium concentrations. In addition, the New Mexico Administrative Code 20.6.2.3103 lists the cleanup standard for chromium as 0.05 mg/L. The Permittee must compare the total chromium concentrations to this level as specified by Permit Appendix 3, Section 3.1 (Groundwater Cleanup Levels).

6. Section 5.2.1 – Analytical Data Results, Organic Analytes, Perched, Page 5-3:

Permittee Statement: “Note that six of the perched water wells (HMW-11, HMW-38, HMW-39, HMW-40, HMW-41, and HMW-43) have submerged screens; i.e., the current water table is above the top of the well screen. Because some contaminants are lighter than water, they may be at higher concentrations near the top of the water table. Under certain hydrogeological conditions, sampling from wells with submerged screens can cause contaminant concentrations to be under-represented.”

NMED Comment: Revise all Figures and Tables to clearly identify the wells with submerged screens and include a footnote that states contaminant concentrations in these wells may be higher than reported.

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7. Section 5.3 – Comparison to Historical Results, Page 5-3:

Permittee Statement: “At the Construction Landfill wells, which are all regional aquifer wells...”

NMED Comment: The Permittee’s statement is inaccurate. According to section 2.1 (Construction Landfill, SWMUs 38 and 39) and Table 1 (Monitoring Well Information), fifteen wells make up the Construction Landfill monitoring group; seven wells are screened in the regional aquifer and eight are screened in the perched water zone. In 2018, the regional wells were gauged and sampled while the perched wells were gauged only. Revise the statement for accuracy.

The Permittee must address all comments contained in this Disapproval and submit a revised Report no later than **January 31, 2023**. The revised Report must include a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. In addition, an electronic version of the revised Report must be submitted on a CD/DVD that identifies where all changes have been made in red-line strikeout format.

Should you have any questions, please contact Robert Murphy of my staff at (505) 690-5660.

Sincerely,

**Dave
Cobrain**

Digitally signed by Dave
Cobrain
Date: 2022.10.12
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Dave Cobrain
Program Manager
Hazardous Waste Bureau

cc: R. Murphy, NMED HWB
L. Tsinnajinnie, NMED HWB
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