



NEW MEXICO
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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 11, 2019

Mr. Adam Kusmak
Chief, Installation Management Flight
49th CES/CEI
550 Tabosa Avenue
Holloman AFB, NM 88330

**RE: DISAPPROVAL
FINAL SS018 (AOC-H) – VOC SPILL SITE INTERIM MEASURES REPORT, APRIL 2019
HOLLOMAN AIR FORCE BASE, EPA ID # NM6572124422
HWB-HAFB-19-010**

Dear Mr. Kusmak:

The New Mexico Environment Department (NMED) has reviewed the above referenced Interim Measures Report (Report) received from Holloman Air Force Base (Permittee) on April 26, 2019. The NMED hereby issues this Disapproval of the Report. The Permittee must address the following comments.

General Comment

1. Section 7.3.3 of the Report states that "The TDS [total dissolved solids] concentrations in groundwater at the Site range from 2,600 mg/L to 18,000 mg/L. Because most TDS concentrations are below 10,000 mg/L [milligrams per liter], groundwater can be considered a potential potable water source. A hypothetical future resident may come into contact with groundwater via household use and drinking water if future residential use of the Site occurred". Further, Figure 7-1, the human health conceptual site model, and Section 7.2 define the exposure pathway for ingestion and dermal contact with groundwater for a hypothetical on-site resident complete. However, the Report does not

include a qualitative assessment of exposure to groundwater for a hypothetical resident. Table 8 provides a point-to-point comparison to groundwater concentrations for chemicals with New Mexico Water Quality Control Commission (WQCC) groundwater standards and/or Environmental Protection Agency (EPA) maximum contaminant levels (MCL). However, all detected chemicals in groundwater must be included with concentrations compared to tap water screening levels, to assess impacts to overall risk, which include the additive risk from multiple chemicals. While the Report concludes there are potential risks using groundwater as a drinking water source, the risks are not qualified. Further, the assessment does not quantify risks to a hypothetical resident via the vapor intrusion pathway. Tables 13 and 14 provide a point-to-point comparison of the groundwater and soil concentrations to vapor screening levels but actual risks/hazards are not quantified and additive risk from exposure to multiple chemicals are not evaluated. In order to meet the Interim Measures (IM) objective (Section 1.2) of completing a quantitative vapor intrusion risk assessment, actual quantitative risks via consumption of groundwater and via vapor intrusion must be calculated and added to those risks from exposure to site soils. The risk assessment as presented in the Report does not meet the IM objective, is inconsistent with the NMED Soil Screening Guidance for completing risk assessments and overall is incomplete. While not directly stated in the objectives, similar issues are noted for the industrial worker. Risks for all pathways were not quantified nor were risks combined for an overall assessment of exposure to an industrial worker. The Permittee must revise the risk assessment to include a quantitative evaluation of all potentially complete pathways for all receptors as defined in Figure 7-1. In addition, additive risk (soil, groundwater and soil vapor) must be presented in the revised Report.

Specific Comments

2. **Section 7.3.3, Groundwater:** The text states that 1,4-dioxane does not have a WQCC standard or an MCL for comparison. 1,4-dioxane was listed as a *toxic pollutant* in the December 21, 2018 update of the 20 New Mexico Administrative Code, Chapter 6, Part 2 (NMAC 20.6.2). As a toxic pollutant, the tap water screening level must be used for assessing impact, as discussed below. Therefore, this statement is incorrect. 1,4-dioxane was included in the risk assessment as a constituent of potential concern; therefore, no changes are needed to the risk assessment. However, revise the text to reflect the updates to 20.6.2.7 and 20.6.2.3103 NMAC.

3. **Section 7.3.3, Groundwater:** The text summarizes the point-to-point comparison of groundwater data to residential levels. The comparisons are limited to WQCC standards and/or MCLs. As noted in other comments, the tap water screening levels should also have been considered for evaluating risk. Since a qualitative analysis for the groundwater pathway was not conducted, the IM objective was not met. The Permittee shall either revise the text and objectives to allow for a qualitative assessment and add a discussion

that, based on the preliminary assessment, it can be assumed that there is adverse risk to a resident from exposure to groundwater or modify the Report to meet the objective and include a complete quantitative assessment of risk. As risks are not quantified, land use controls (Section 9.0) must be in place limiting exposure to groundwater to a hypothetical future resident.

4. **Section 7.3.3.2, Estimation of Exposure Point Concentrations:** The text provides several references to EPA documents and discussion on use of the arithmetic mean to address what should be used as the exposure point concentration (EPC). Please note that the NMED Soil Screening Guidance clearly states that for the initial screening steps, the maximum reported concentration shall be used as the EPC. If a refined EPC is needed, a 95 upper confidence level of the mean derived using the most current version of ProUCL may be used. Revise the section to reflect the NMED guidance for how EPCs were determined. In addition, the maximum detected concentration was applied for the soil screenings and for comparisons to the groundwater standards. The Permittee must clarify why the maximum detected concentration was not initially used as the EPC for assessing exposure to groundwater for the construction worker. In addition, the Report must be revised to discuss additive risk across pathways: the risks from groundwater must be added to the risks from soil and vapor intrusion. Discuss uncertainties in combining risk based on differing EPCs in Section 7.3.3.8.
5. **Section 7.3.4, Soil Migration to Groundwater and Table 12:** Soil screening levels (SSLs) are not listed in the table for several chemicals for which a screening level is available. While WQCC and/or MCL-based SSLs are not available for all the chemicals, available tap-water based SSLs must be used in the evaluation. Because most TDS concentrations are below 10,000 mg/L, groundwater can be considered a potential future water source. Therefore, all chemicals must be evaluated for the potential to migrate to groundwater, regardless of whether or not the chemical has an associated water quality standard (e.g., WQCC or MCL). Further, the hazardous waste permit for the facility defines interim measures as those intended to minimize or prevent the further migration of contaminants and limit actual or potential human and environmental exposure to contaminants. Complete evaluation of the potential for contaminants in soil to migrate to groundwater is required. Revise the Report and Table 12 to include the tap-water-based SSLs where available. As noted in Section 4.3 of the NMED Soil Screening Guidance, the least conservative of the WQCC-, MCL-, or tap water-based SSL shall be applied for soil to groundwater contaminant migration.
6. **Section 7.3.5, Indoor Air:** Tables 13 and 14 show a comparison of groundwater and soil vapor data to vapor intrusion screening levels. However, actual risks are not calculated. While chemical concentrations may be below a vapor intrusion screening level, cumulative exposure to all chemicals present may result in adverse risk. For the industrial worker, which is a complete and current exposure scenario, the risks via vapor intrusion

must be quantified and added to the risks via the soil exposure pathway. Revise the Report to include a complete evaluation of potential risk to the industrial worker.

7. **Table 7:** There are two issues related to this table:

- In reviewing the historic data provided in Appendix E, the maximum detected concentration for tetrachloroethylene does not appear to have been applied. Verify the data and ensure the maximum detected concentrations are listed.
- The maximum detected concentrations listed on the table are assumed to represent the maximum detection from zero to 10 feet below ground surface, as this is the defined exposure interval for the resident and construction worker as specified in Section 7.3.1. However, Section 7.3.1 also states that the industrial worker is only exposed to the top foot of soil. Either revise the table to include the correct EPC for the industrial worker or revise Section 7.3.1 to discuss the actual soil exposure interval evaluated and why use of a larger exposure interval is still protective (or conservative) for the industrial worker.

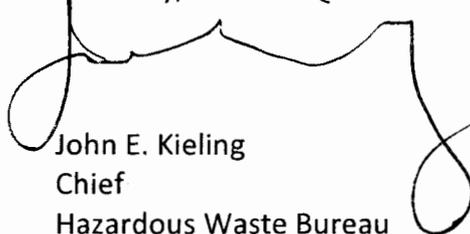
8. **Figure 3-1:** This figure shows soil vapor point (SVP) SVP-03 at the south corner of Building 281. This is actually SVP-02. Revise this figure accordingly.

9. **Figure 4-3:** This figure shows the June 2018 soil vapor sample results for SVP SS18-SVP02 for 1,4-dioxane as 640 micrograms per liter. This is actually the result for tetrachloroethylene. Revise this figure accordingly.

The Permittee must submit a revised Report that addresses all comments contained in this Disapproval. In addition, the Permittee must include a response letter that cross-references where NMED's numbered comments were addressed. The Permittee must also submit an electronic redline-strikeout version of the revised RFI Report showing where all changes have been made to the Report. The revised Report must be submitted no later than **September 20, 2019**.

If you have any questions regarding this letter, please contact Mr. David Strasser of my staff at (505) 222-9526.

Sincerely,



John E. Kieling
Chief
Hazardous Waste Bureau

Mr. Adam Kusmak
July 11, 2019
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