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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

November 7, 2016

Adam M. Kusmak
Chief, Installation Flight Management
49th CES/CEI
550 Tabosa Avenue
Holloman AFB, NM 88330-8458

**RE: DISAPPROVAL
RISK ASSESSMENT FOR SD-27 PAD 9 DRAINAGE PIT (SWMU 141),
HOLLOMAN AIR FORCE BASE, NEW MEXICO, JULY 2016
HOLLOMAN AIR FORCE BASE, EPA ID# NM6572124422
HWB-HAFB-16-022**

Dear Mr. Kusmak:

The New Mexico Environment Department (NMED) has reviewed the report: *Risk Assessment for SD-27 Pad 9 Drainage Pit (SWMU 141), Holloman Air Force Base, New Mexico, July 2016*, which was received on July 29, 2016. The subject report is disapproved with the following comments.

Comment 1

Concentrations of contaminants in groundwater monitoring well SD-MW05 have been observed to be increasing over time. Groundwater samples have not been collected in three years. Additional groundwater sampling and analysis is required to evaluate concentrations trends in well SD-MW05. In addition, a trend analysis shall be performed to provide a discussion of groundwater contaminant concentrations over time. Discuss the cause (or potential causes) for increasing concentrations in reference to the 2006 removal of contaminated sump sediments. A groundwater contamination plume map was not provided with the report. Provide contaminant plume maps for selected constituents.

Comment 2

A complete ecological risk assessment was not conducted for this site. Since the depth of contamination is greater than 6.5 feet below ground surface (ft bgs), exclusion of non-burrowing receptors is acceptable. The NMED Soil Screening Guidance (SSG) only requires an ecological assessment to non-burrowing receptors exposed to contamination in the upper five feet of soil. Burrowing receptors must be evaluated for the soil exposure interval of 0-10 ft bgs. A qualitative discussion of the potential for burrowing receptors and deep rooted plants present at the site must be performed. If these receptors are or could be present, an ecological assessment is required per the NMED SSG.

Comment 3

The conclusion that no source(s) remain in soil cannot be made. The sump remains in place and the drain line has not been fully evaluated and could contain contamination leaching to groundwater. The material in and surrounding the pipe has not been defined. A camera survey or sampling should be conducted to confirm the integrity of the pipe between the wash rack and the pit. Samples SB27-05 and SB27-04 are located within 25 feet of the pipe, but there does not appear to be any specific rationale for the locations of these samples and the samples do not necessarily represent soils beneath the pipe. Soil samples were not collected from borings SB27-06 and SB27-07 and only radiological constituents were included for analyses of soil samples collected from BH-27-01. Further, no samples were collected at either the inlet (at the connection with the drainage trough) or outlet (into the drainage pit) locations. There are several data gaps with respect to the discharge pipe. Clarify what investigations have been conducted to date with respect to this feature and discuss data gaps.

Comment 4

The risk assessments do not follow the intent of the initial screening assessment based on the NMED SSG. Site maximum concentrations were compared to the NMED soil screening levels (SSLs), as noted in Section 4.2.1 of the report. This procedure is based on NMED SSG Section 2.7.6, which allows this type of comparison to determine initial COPCs for site characterization purposes only. However, for purposes of determining COPCs for risk screening, the comparison should not be a point comparison but include a calculation of cumulative risk including all potential risk-COPCs. Further, for the screening level assessment, risks across all pathways must be evaluated.

For the North EU, the comparison of maximum detected concentrations to the SSLs resulted in no soil COPCs (Table 4-7(a)). But, if cumulative risk is evaluated, and all chemicals listed in Table 4-7(a) were carried forward, per the NMED SSG, the risk to the residential receptor would be 2.82E-09 and the hazard index (HI) would be 1.49E-04. While the risks are less than the NMED target levels of 1E-05 and 1.0, respectively, these risks would be added to the predicted inhalation risks from groundwater and soil vapor.

The screening assessment for groundwater eliminated both volatiles (methylene chloride and trichloroethylene) detected in groundwater associated with the North EU as the concentrations were less than the NMED vapor intrusion screening level (Table 4-10(a)). However, in accordance with the NMED SSG (Section 2.5.2.2), in order to eliminate the vapor intrusion pathway, the number of detections must be minimal, concentrations must be below vapor intrusion screening levels (VISLs), and no suspected source of volatiles should be present. In reviewing the data in Table 4-5 for North EU groundwater, a case can be made that the detections of methylene chloride and trichloroethylene are minimally detected. A case could also be made that the source(s) has been removed in that the site is no longer being used and contaminated sediments in the sump have been removed. However, this type of qualitative discussion must be included in the report.

If the risks for direct/indirect contact with soil and the vapor intrusion risks from soil (Table 4-21(a)) are evaluated and added, the overall site risk to the residential receptor would be $2.82\text{E-}09$ (cancer risk) and $5.37\text{E-}04$ (HI); both are below target levels for clean closure.

Based on the evaluation above, the North EU does meet closure without controls for the residential receptor. However, the report must be clarified to include a qualitative discussion of the vapor intrusion pathway for soil and a complete screening assessment for both the residential and construction worker scenarios to demonstrate additional corrective action is not warranted for this area. Section 4.5 should also be modified to include the cumulative risk across all pathways for both receptors.

Similar concerns are noted with the risk screen for the South EU. For the South EU, the comparison of maximum detected concentrations to the SSLs resulted in chromium being the only soil COPC (Table 4-7(b)). But, if cumulative risk is evaluated, and all chemicals listed in Table 4-7(b) were carried forward, per the NMED SSG, the risk to the residential receptor would be $1.03\text{E-}05$ and the hazard index (HI) would be $2.5\text{E-}01$. The soil risk is slightly above the target level of $1\text{E-}05$. Risk is driven by low level risk from chromium and ethylbenzene detected in soil. However, when the risk/HI in soil is added to the vapor intrusion risks (Table 4-21(c)), the overall site risk and HI are $1.05\text{E-}05$ and $1.04\text{E+}00$, respectively; both slightly above the target levels of $1\text{E-}05$ and 1.0.

Based on the evaluation above, the South EU may meet closure without controls for the residential receptor with some additional evaluation and discussion. The report must be clarified to include a complete screening assessment for both the residential and construction worker scenarios to demonstrate additional corrective action is not warranted for this area. Section 4.5 should also be modified to include the cumulative risk across all pathways for both receptors.

Comment 5

A site attribution analyses was not conducted, and inorganics were eliminated as COPCs if the maximum concentration was less than the background level established at Holloman Air Force Base (*Basewide Background Study Report*, for Holloman Air Force Base (HAFB) on December

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28, 2011 and as corrected in March 2012). Inclusion of the metals, regardless of representation of background, is conservative. It is also noted that for the South EU, chromium would still be retained as a COPC due to the elevated concentration compared to background.

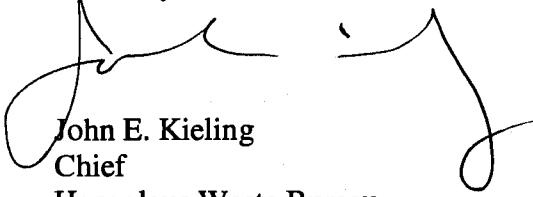
Comment 6

The Northern Exposure Unit primarily consists of the Pad 9 wash rack. Only three soil samples were collected to define nature and extent of contamination for this feature. Discuss whether there is any history of overflow of the wash rack and whether or not additional samples around the outer edge of the concrete pad are warranted to define the extent of contamination. While Section 1.2.2 states that the pad is in fairly good shape with only a few cracks and fractures, discuss whether or not any biased samples associated with the cracks are needed to assess potential contamination beneath the concrete pad.

A response to the comments of this notice of disapproval must be submitted to NMED by **February 19, 2017**.

If you have any questions regarding this letter, please contact Mr. Brian Salem of my staff at (505) 222-9576 or at the address indicated in the letterhead of this letter.

Sincerely,



John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
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File: HAFB 2016 and Reading
HWB-HAFB-16-022