

May 18, 2017

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Mr. David Cobrain
New Mexico Environment Department (NMED)
Hazardous Waste Bureau
2905 Rodeo Park Dr. E/Bldg 1
Santa Fe, NM 87505



RE: Technical Review of the Responses to NMED Comments and *RCRA Facility Investigation at FL070*, Revision 1, Cannon Air Force Base (CAFB), dated November 2016.

Dear Mr. Cobrain:

This letter addresses the review of responses to comments and Revision 1 of CAFB's, *RCRA Facility Investigation at FL070*, dated November 2016. Unless discussed below, the responses to comments were adequate as provided.

Updates to the risk assessment were made in accordance with the comments. However, it is noted that the residential risks presented in Table F-2 resulted in risk slightly above the target risk levels of 1E-05 (cancer) and 1.0 (noncancer). To offset the risks, the risk contributable to background was subtracted from total risk. This is not an acceptable step in a RCRA-based risk assessment. Rather, this is more indicative of a CERCLA-based risk assessment. However, the residential risks were re-calculated using the 2017 NMED Soil Screening Levels (SSLs) as part of this review (data provided in Table 5-2 were used). The resulting total cancer risk was 1.19E-05 and the hazard index was 1.35. These are based on the use of the maximum detected concentration. No single constituent drove either the cancer risk or HI, but rather low level metal detections. In reviewing the data, the use of the 95% upper confidence level of the mean (UCL) as a revised exposure point concentration would likely drop both the total cancer risk and HI to well below the NMED target levels. Therefore, it is agreed that direct exposure to soil does not pose adverse risk to the residential receptor.

Risks were also calculated for the vapor intrusion pathway (data provided in Table 5-1 were used). The risks for the residential receptor to exposure of volatiles was 7.86E-06 cancer risk and 7.33E-02 HI. However, per the 2017 NMED Soil Screening Guidance (SSG), risks across all pathways must be assessed. When the risk and HI from exposure to soil was added to those for the vapor intrusion pathway, the total site risk to the residential receptors increase to 1.98E-05 cancer risk and 1.42 HI. The drivers for the elevated risks are still the low-level metals detections in soil and not the vapor intrusion risks. If a UCL had been applied to the soil exposure assessment, it is likely that the overall site risk would fall within acceptable risk levels. Therefore, it is agreed that the site meets residential risk.

A similar review of the data to the 2017 NMED SSLs based on a dilution attenuation factor of 20 was conducted. The 2017 SSG allows for either a risk-based or maximum contaminant level-based SSL. It is noted that only naphthalene, arsenic and iron had maximum detected concentrations above the 2017 SSL. Use of a UCL for arsenic and iron would likely show levels below the SSL. Further, the physical-chemical properties of arsenic and iron render them fairly immobile and it is unlikely that they could migrate to groundwater (depth around 300 feet). Insufficient data are available to calculate a UCL for naphthalene (detected in only 2 of 103 samples). The maximum detected concentrations for the total petroleum hydrocarbons were below the new SSLs (Table 6-4 2017 NMED SSG).

In looking at the data, there does appear to be a downward migration of vapors. The primary sources (the oil water separator and underground storage tank) were removed, however, the underlying contaminated soil (DRO-impacted soil at around 50 ft) is acting as a source for sinking and potentially pooling vapors. This is evidenced by the maximum detected concentration of benzene at 110 ft. Sufficient data has not been provided to demonstrate vertical characterization of the site. In addition, the data and lines of evidence provided in the report do not rule out the possibility of sinking and pooling vapors.

It is our recommendation that continued ventilation and monitoring of the building be continued and that additional vapor monitoring of subsurface soil be continued until sufficient data are available to demonstrate degradation of constituents and/or there is no additional vertical migration.

If you have any questions, please contact me at (801) 451-2864 or via email at paigewalton@msn.com.

Thank you,



Paige Walton
AQS Senior Scientist and Program Manager

cc: Gabriel Acevedo, NMED (electronic)
Joel Workman, AQS (electronic)