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October 25, 2022

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Ms. Melissa Clark  
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**RE: RESPONSE TO THE AIR FORCE LETTER REGARDING SOIL VAPOR MONITORING  
AT THE BULK FUELS FACILITY SPILL  
SOLID WASTE MANAGEMENT UNITS ST-106 AND SS-111  
KIRTLAND AIR FORCE BASE, NEW MEXICO  
EPA ID# NM6213820974  
HWB-KAFB-22-004**

Dear Colonel Vattioni and Ms. Clark:

The New Mexico Environment Department (NMED) received the Kirtland Air Force Base (Permittee or KAFB) letter (Letter) dated September 4, 2022 regarding soil vapor sampling modifications required for Solid Waste Management Unit ST-106/SS-111 Bulk Fuels Facility Spill (BFFS) on September 8, 2022.

The Letter incorrectly states that NMED is requiring additional site characterization. NMED did not require additional site characterization but rather only a change in sampling method. NMED requires that site characterization be conducted in a manner appropriate to collect representative samples, in accordance with industry standards, EPA guidance, and the KAFB RCRA Permit (Permit). The requirement to collect representative data is in the Permit. Since no additional site characterization has been required, the need for a supplemental work plan does not apply.

As has been discussed and documented on previous occasions, the Air Force is not collecting representative samples of soil vapor under their current sampling protocol. The Letter states, "[t]he methodology was selected to ensure the collection of representative soil vapor samples by addressing site specific conditions and following industry standards." As previously stated in correspondence, both EPA and an independent contractor have concurred with NMED that this is not the case. EPA guidance and the industry standard is to extract three purge volumes prior to sample collection; the Air Force extracts less than one purge volume prior to sample collection. In addition, the Air Force purges and collects soil vapor samples utilizing a flow rate

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that is over an order of magnitude higher than EPA-recommended purge and sampling flow rates. These and other previously identified issues indicate that soil vapor samples representative of subsurface conditions are not currently being collected.

As previously provided in the July 29, 2022 email from Ben Wear of NMED to the Air Force representative Ryan Wortman, KAFB Permit Part 1.23.1 states,

“[t]he Permittee shall take representative samples and measurements in accordance with the procedures in this Permit and 40 C.F.R. § 264.13(a)(1). All samples and measurements taken by the Permittee under any requirement in this Permit shall be representative of the waste, media, equipment or structure being sampled. This includes, but is not limited to, sampling and analysis of waste, treatment residues, soil, groundwater, spills, and includes sampling of media for purposes of conducting corrective action pursuant to Part 6 of this Permit.”

KAFB Permit Part 6.5 states,

“[t]he methods used to conduct investigation, remediation, and monitoring activities shall be sufficient to fulfill the requirements of this Permit, and to provide accurate and representative data for the evaluation of site conditions, the nature, concentration, rate of migration, and extent of contamination, and for remedy selection and implementation, where necessary.”

KAFB Permit Part 6.5.16 states,

“Samples of subsurface vapors shall be collected from vapor monitoring points where required by the Department. The Permittee shall, as required by the Department, collect soil-vapor samples for field measurement of:

1. Percent oxygen;
2. Organic vapors (using a photo-ionization detector with a 10.6 eV lamp, a combustible vapor indicator or other method approved by the Department);
3. Percent carbon dioxide;
4. Static subsurface pressure; and
5. Other parameters, such as carbon monoxide and hydrogen sulfide.

The Permittee also shall collect soil-vapor samples for laboratory analysis of the following:

1. Percent moisture;
2. VOCs; and
3. Other analytes required by the Department.

Col. Vattioni and Ms. Clark  
October 25, 2022  
Page 3

When collecting soil-vapor samples for laboratory or field analysis, the Permittee shall continually monitor the concentrations of soil vapor from a given monitoring point with an appropriate field instrument (e.g., photoionization detector). The Permittee shall collect soil vapor samples after the field instrument readings have stabilized and after the sampling tubing and soil-vapor monitoring well have been appropriately purged to remove all stagnant vapor.”

The methods agreed upon by the TWG do not conform to EPA guidance or standard industry practice and therefore do not ensure the collection of representative samples. No site conditions exist that warrant the methods currently in use. The TWG discussed technical issues in relation to the preferences of the Permittee to reduce purge volumes which would, and did, influence the results. There is no documentation that the discussions included adequate consideration of conducting work in accordance with EPA guidance or standard industry practices as indicated by those practices ultimately being disregarded.

The Letter also states, “[t]he Air Force currently executes soil sampling activities in accordance with the NMED-approved February 2018 work plan...”. This statement is not accurate. For example, the work plan provides a purge volume, although incorrectly calculated and unacceptably low, of 2.337 ft<sup>3</sup> for KAFB-106108-025. Soil Vapor Purge and Sampling Logs indicate that KAFB-106108-025 was purged of 1.714 ft<sup>3</sup> in the 4<sup>th</sup> quarter 2021 sample event. Similarly, the work plan provides a purge volume, although incorrectly calculated at less than one purge volume, of 2.412 ft<sup>3</sup> for KAFB-106108-050; this port was purged of 1.789 ft<sup>3</sup> in the 4<sup>th</sup> quarter 2021. These types of miscalculations appear to have been applied for most sample ports in the 25-50 ft below ground surface (bgs) range since 2015. Miscalculations have resulted in the routine collection of soil vapor data since 2015 that is not representative of subsurface conditions.

Since NMED provided direction requiring changes to the soil vapor sampling protocol in August and September 2021, the Permittee has conducted four separate sampling events without incorporating the required changes.

NMED issued a *Request for Soil Vapor Monitoring Work Plan* letter to KAFB on September 16, 2022. This request includes specific sampling modifications that must be incorporated into the work plan. This work plan must be submitted as a standalone work plan specifically for soil vapor monitoring activities at the BFFS site.

The Permittee must immediately implement the sampling methods directed by NMED in its August 31, 2021 letter and subsequent September 24, 2021 email which is further supported by NMED’s September 16, 2022 letter requiring the submittal of a soil vapor monitoring work plan that includes the sampling methods specified in the cited previous correspondence.

Should you have any questions, please contact Ben Wear of my staff at (505) 690-6662.

Col. Vattioni and Ms. Clark  
October 25, 2022  
Page 4

Sincerely,

**Rick Shean**

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Rick Shean  
Chief  
Hazardous Waste Bureau

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