

'KAFB BFFS'  
Vapor Intrusion  
Investigation



Albuquerque Bernalillo County  
Water Utility Authority

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## Memo

**To:** Stephanie Stringer and John Keiling  
**From:** Diane Agnew  
**CC:** Kate Mendoza, Dennis McQuillan  
**Date:** 7/12/2019  
**Re:** Kirtland Air Force Base Bulk Fuels Vapor Intrusion Data Gap Soil Solid Waste Management Unit ST-106/SS-111 Vapor Sampling Work Plan, Bulk Fuels Facility

The Albuquerque Bernalillo County Water Utility Authority (Water Authority) has reviewed the *Vapor Intrusion Data Gap Soil Solid Waste Management Unit ST-106/SS-111 Vapor Sampling Work Plan, Bulk Fuels Facility* (May 2019) (Plan) submitted by Kirtland Air Force Base (KAFB) for the Bulk Fuels Facility (BFF) project site. This work plan was discussed during the April 24, 2019 technical working group (TWG) meeting, prior to KAFB submittal of the plan to the New Mexico Environment Department (NMED). The Water Authority comments below are based on our review of the Plan as well as our understanding of the path forward discussed at the April 24, 2019 TWG meeting. The Water Authority requests NMED to consider the following comments and meet with Water Authority staff at your earliest convenience.

- The Plan outlines the installation of temporary soil vapor measurement points within the residential area north of Ridgecrest Drive as well as within the Veteran's Administration (VA) Medical Center campus. The construction of these points is substantially different from the other soil vapor monitoring points (SVMPs) at the project site and consists of the installation of Teflon tubing and screen lengths of 0.5 feet. In contrast, the SVMPs at the site are made with 1/2- to 3-inch PVC piping and 10-foot screen intervals. Moreover, the existing SVMPs were specially re-designed to minimize the effects of barometric pumping in the soil vapor sampling. The variability in construction, specifically the difference in screen length and potential influence of barometric pumping, is not specifically addressed in the Plan. Will the data collected from these temporary points be quantitatively comparable to the results of the existing SVMPs at the site?
- The description of the vapor monitoring point construction does not match the well construction diagram in the Plan. In particular, the text references the use of dry bentonite powder to seal the three separate sampling depths, while the diagram indicates that hydrated 3/4-inch bentonite chips will be used for the annular seal. The hydrated bentonite chips will likely create a more robust seal and would better isolate the separate sampling depths; the concern with the dry powder is the potential of cross-communication of vapor between the three separate depths. Additionally, the text does not mention the silica sand shown as filter pack around the screened sections on the diagram. The Water Authority

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requests that the text and diagram be revised so that they clearly indicate the proposed well construction.

- In Attachment 2 in the section titled “Proposed Temporary Vapor Monitoring Point Construction” there is the following statement:

“Proposed temporary completion status is depicted in each figure and includes making a small excavation around the tubing to a few inches below grade, inverting a 2.5-gallon plastic pail over the tubes and valves, covering with soil and leveling to match adjacent grade to hide the monitoring points.”

This “surface completion” of the temporary sampling points seems inadequate to be protective of the sample points and ensure quality of data given the high level of recreational use and pedestrian foot traffic of the proposed sample locations. This completion design could also allow for the escape of vapors from the sample point between and during sampling events.

- Attachment 3, Sample Collection and Analysis Plan, in the section titled “Soil Vapor Sample Collection and Analysis” there is the following statement:

“Proposed soil vapor sampling will be conducted after each of the proposed temporary vapor monitoring points have been completed and adequate time has elapsed to allow for perturbed soil vapor conditions from monitoring point installation to return to ambient conditions...”

There is no definition or clarification of what “adequate time” is or what metrics will be used by the samplers to determine that it has elapsed. The analysis of soil vapor data on the BFF site has demonstrated that when and how samples are collected are critical for ensuring quality data that can be quantitatively used across monitoring points. The section goes on to say:

“Barometric pressure and trends will be noted during sample collection to assess propensity for air to move into or out of shallow soils during soil vapor sampling.”

The Water Authority requests that the Plan be revised to follow the standard procedures developed and approved by the NMED for SVMP sampling at the site.

- During the April 24, 2019 technical working group meeting (TWG), the Air Force stated that there would be two sampling events (summer and winter) in compliance with the NMED February 2019 letter. The Plan, however, states that only one sampling event is planned (Summer 2019) and that:

“A second sampling event will be performed at accessible locations if additional information is needed to meet risk assessment data objectives.”

It is not clear from the Plan what metrics will be assessed in order to determine if additional information is needed. It is also not clear what would change between the summer sampling event and this potential second event that would alter the accessibility of locations for sampling. The Water Authority requests that the metrics for triggering additional data collection be clearly outlined in the Plan and that the Air Force take all necessary actions to ensure the accessibility of all the soil vapor monitoring points.

- A single sampling event is insufficient to be able to assess vapor concentrations at the site. The proposed sample locations are in open spaces such as the recreational fields of Bullhead Park and the VA Medical Center campus where the sample results will likely be sensitive to barometric pressures and fluctuations as well as time of day. The Water Authority would like to see a minimum of four quarters of soil vapor sampling in order to address temporal variability in the soil vapor and to also adequately evaluate barometric pressure influences on sample results.
- The Water Authority has an overarching concern with the well construction; purging and sampling protocols; inclusion of barometric pressures and trends in data analysis; and data comparability and use.
- Table 1 of the Plan lists a limited set of analytes for reporting for the samples. The Water Authority requests that the list of reported analytes for the new soil vapor monitoring samples be the same (or more) as what is reported in the regular quarterly reporting for soil vapor.
- The Plan lacks a discussion of what will occur if any of the sample points return soil vapor concentrations are in excess of the Vapor Intrusion Screening Level (VISL). If there are any samples with soil vapor concentrations greater than a VISL, the sample location and depth should be considered for permanent well construction and continued quarterly monitoring in order to be protective of potential receptors until at least the completion of the vapor risk assessment if not the Corrective Measures Evaluation. The Water Authority would like to see the Plan revised to include a discussion of actions to be taken by KAFB if VISL(s) are exceeded.

The Water Authority agrees that it is critical to address the soil vapor data gap that exists at the VA Medical Center Campus, at Bullhead Park, and the area north of Bullhead Park. This data will provide a better, more robust understanding of soil vapor migration from the plume and will yield a complete vapor risk assessment. Additionally, addressing the outstanding soil vapor data gap will provide a more complete understanding of the remaining fuel that could potentially contaminate groundwater; current groundwater concentrations of fuel contaminants indicate a persistent source for the plumes. Our primary concern with this Plan is that the proposed work is overly simplified and will result in a limited dataset that cannot be used in conjunction with the existing SVMP data and therefore will not adequately address the data gap. Additionally, the construction of these wells seems to be overly simplified, with too much of a focus on being temporary in nature and not enough of a focus on yielding reliable and meaningful data that will provide the NMED and other stakeholders with confidence.

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