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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

MAY 26 2020

Colonel David S. Miller
Base Commander
377 ABW/CC
2000 Wyoming Blvd SE
Kirtland AFB, NM 87117

Lt. Colonel Wayne J. Acosta
Civil Engineer Office
377 Civil Engineering Division
2050 Wyoming Blvd SE, Suite 116
Kirtland AFB, NM 87117

**RE: DISAPPROVAL
WORK PLAN FOR SHALLOW SOIL VAPOR SAMPLING, BULK FUELS FACILITY, SOLID
WASTE MANAGEMENT UNITS ST-106/SS-111, NOVEMBER 2019
KIRTLAND AIR FORCE BASE, NEW MEXICO
EPA ID # NM9570024423
HWB-KAFB-19-014**

Dear Colonel Miller and Colonel Acosta:

The New Mexico Environment Department (NMED) received the U.S. Air Force (Permittee) Kirtland Air Force Base (Facility) *Work Plan for Shallow Soil Vapor Sampling, Bulk Fuels Facility, Solid Waste Management Units ST-106/SS-111, November 2019* (Work Plan), on November 8, 2019. NMED has reviewed the Work Plan and hereby issues this Disapproval with comments. NMED's comments are attached.

The primary technical issue with the Work Plan is that it does not address the areas identified in NMED's February 25, 2019 letter requiring the Work Plan, nor does it follow EPA guidance on conducting shallow soil vapor sampling related to vapor intrusion. NMED and KAFB staff met on May 7th to discuss the Work Plan and the contents of this Disapproval to facilitate the submittal of an approvable revised Work Plan, the results of which are summarized in NMED's comments.

The Permittee must submit a revised Work Plan that corrects all deficiencies noted in this Disapproval. The revised Work Plan must be accompanied by a response letter (also included as an appendix) that details how and where NMED's comments were addressed and cross-references the numbered comments. In addition, the Permittee must submit an electronic redline-strikeout version of the revised Work Plan that shows where all changes were made to the Work Plan. Please submit the revised Work Plan as soon as possible but no later than **August 28, 2020.**

If you have any questions regarding this letter please contact me, or your staff may contact Ben Wear at (505) 476-6041.

Sincerely,

A handwritten signature in blue ink that reads "Kevin M. Pierard" with a stylized flourish at the end. Below the signature, the word "for" is written in a smaller, cursive script.

Kevin M. Pierard, Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
R. Murphy, NMED HWB
B. Wear, NMED HWB
L. King, EPA Region 6 (6LCRRC)
S. Clark, KAFB
K. Lynnes, KAFB

File: KAFB 2020 and Reading

Attachment 1 - NMED Comments

GENERAL COMMENTS

1. Permittee Response to NMED's July 26, 2019 Rejection Comments

NMED Comment: The Permittee must include their Response to Comments (RTCs) in a document appendix for all revised document submittals. While the Permittee submitted the RTCs in a separate electronic file, the RTCs must be included as an appendix to the plan to allow stakeholders and the public easy access when reviewing the document. For all future revised documents submitted to NMED, the Permittee must include the RTCs as an appendix to the document. Please revise the Work Plan accordingly. This was discussed on May 7; KAFB agreed to follow this procedure.

2. Permittee Response to NMED's July 26, 2019 Rejection Comment #1

NMED Comment: Comment #1 of NMED's July 26, 2019 Rejection letter states, "...the pages of the attachments contain no page numbers...In order for NMED to be able provide comments that reference where issues are found, as well as for the public to be able to review the document in the Administrative Record, every page of every document submitted must be numbered appropriately. The Permittee must submit a work plan in the appropriate format, including addition of the appropriate information in the corresponding sections, based on the Permit requirements and must sequentially number every page in the document."

The Permittee failed to sequentially number all pages of the document as directed by NMED in the Tables section, the Figures Section, and all three appendices of the Work Plan. In addition, the appendices contain tables with no table numbers, figures with no figure numbers, and multiple pages with no page numbers at all. The Permittee must ensure that all submittals, including the revised Work Plan, include sequential page numbers on all pages, and that tables, figures, and appendices are properly numbered. Making this correction will facilitate timely review and precise communication between NMED and KAFB on all documents submitted for review. It will also facilitate references to information in subsequent activities (e.g., review of corrective action documents). Please revise the Work Plan accordingly. This was discussed on May 7; KAFB agreed to follow this procedure.

3. Well Designations

NMED Comment: The Permittee has used multiple designations for wells in the Work Plan. For instance, Section 3.1 of the Work Plan discusses wells KAFB-SV-01, KAFB-SV-02, KAFB-SV-03, etc., while Table 1 of the Work Plan lists these wells as KAFB-106-SV01,

KAFB-106-SV02, KAFB-106-SV03, etc. and Figure 2 of the Work Plan lists these wells as KAFB-106SV01, KAFB-106SV02, KAFB-106SV03, etc. Use of multiple designations inhibits NMED's ability to timely review documents by limiting the search function and causing confusion when searching for data in spreadsheets or databases. This issue is evident in many documents submitted by the Permittee. The Permittee must use the official full designation for each well consistently in the revised Work Plan and in all future documents submitted to NMED. This was discussed on May 7; KAFB agreed to follow this procedure.

4. Risk Assessment

NMED Comment: The Permittee referenced a 2017 Risk Assessment throughout the Work Plan. The vapor intrusion pathway portion of the Permittee's 2017 Risk Assessment was not approved; therefore, all references to the results of the risk assessment must be removed from the revised Work Plan. Risk assessment is not appropriate when a site investigation has not yet been completed or where conditions at the site are being manipulated, such as during pilot tests. In addition, preparing and reviewing a premature risk assessment constitutes an ineffective use of resources for both the Air Force and NMED. Discussions between NMED and KAFB on May 7 resulted in both parties agreeing that conducting a risk assessment at this point in the project was neither appropriate nor beneficial. NMED is directing the Permittee to abandon completion of the risk assessment. This does not remove the requirement for the Permittee to investigate the potential for vapor intrusion into buildings and homes near the site. Please revise the Work Plan to remove references to the risk assessment.

5. Appendices

NMED Comment: The Permittee included three appendices in the Work Plan that contain historical data tables. Well construction details, purge volumes, and field measurements for existing deeper soil vapor monitoring wells are not useful for siting shallow soil vapor monitoring wells related to vapor intrusion. In addition, including the analytical tables for the entire suite of VOC analytes is not useful. Select prevalent VOCs and annual concentration contour maps would be more appropriate for siting well locations. In addition, the Permittee must develop the investigation by incorporating the direction provided in both NMED's February 25, 2019 letter and EPA's OSWER Publication 9200.2-154, *OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*, USEPA, June 2015 (EPA VI Guidance) to provide the rationale for the well locations. Failure to follow NMED direction or EPA guidance must be explicitly justified in the revised Work Plan. It is also recommended that the permittee discuss this with NMED in advance of submitting a revised Work Plan. Please remove extraneous data and provide appropriate justification

for proposed well locations in the revised Work Plan. This was discussed on May 7; KAFB agreed to modify the Work Plan.

SPECIFIC COMMENTS

6. Section 2.2, Site History, page 2-1

Permittee Statement: “Samples collected for the evaluation of the vapor intrusion pathway were from depths of 15 to 25 feet below ground surface (bgs), which is deeper than the 10-foot depth used by NMED for VISLs. This imparted a high degree of conservatism to the risk characterization.”

NMED Comment: The Permittee references data from samples collected from depths of 15 to 25 feet bgs. The data presented in the Work Plan is from samples collected from 25 to 30 feet bgs, not 15 to 25 feet bgs. Please provide an explanation and resolve the discrepancy for accuracy in the revised Work Plan.

In addition, the final statement is not appropriate in a section regarding site history, as only historic facts belong in the background section. This statement must be removed from the Work Plan. Also, please remove references to the risk assessment from the revised Work Plan per Comment 2. This was discussed on May 7; KAFB agreed to follow this procedure.

7. Section 3.1, Soil Vapor Monitoring Locations, page 3-1

Permittee Statement: “Four of the proposed SVMP locations (KAFB-SV-01, KAFB-SV-02, KAFB-SV-03, and KAFB-SV-07) were selected to provide shallow soil vapor sample data at sites adjacent to existing vapor point nests having deeper completions.”

NMED Comment: NMED’s February 25, 2019 letter requiring this Work Plan specifically directed the Permittee to conduct sampling “in the residential area north of Ridgecrest or amid buildings on the VA hospital campus.” In addition, the EPA VI Guidance states, “EPA recommends that soil gas samples be taken as close to the areas of interest as possible and preferably from directly beneath the building structure.” The EPA Guidance also states, “[d]epending upon the CSM [conceptual site model], sampling of vapors within the utility corridor (or within a sewer, if present) may be warranted to characterize vapor migration in the subsurface...”

The Work Plan proposes only one of the eight wells within approximately 50-feet of a building. Only one is proposed north of Ridgecrest Drive, and it is in a park approximately 130-feet from the nearest home. In addition, there is no mention of utility corridors or other potential conduits in the Work Plan. This indicates that the Permittee has not followed NMED direction or EPA guidance. The Permittee must

follow NMED direction and EPA guidance or provide justification for not doing so. It is recommended that the permittee discuss this with NMED prior to submittal of the revised Work Plan. Please provide a rationale for well siting including a discussion of all potential vapor conduits.

In the revised Work Plan, the Permittee must provide a thorough CSM, propose appropriate sampling locations that address the areas of concern provided by NMED, and follow the direction provided in the EPA VI guidance or provide justification for not doing so.

8. Section 3.1, Soil Vapor Monitoring Locations, page 3-2

Permittee Statement: "Proposed SVMP locations were selected carefully to avoid areas in roadways and parking lots with heavy vehicular traffic for the following reasons:

- Potential sources of benzene, toluene, ethylbenzene, and xylenes may exist in shallow soils beneath roadways that could interfere with the objectives of this sampling event.
- Interference from vehicular traffic during the sampling may impact vapor concentrations in shallow soils under certain barometric conditions giving potential false positive results."

NMED Comment: Consistent with NMED direction and EPA's VI Guidance for siting monitoring wells, soil vapor monitoring must include areas where vapors may accumulate in close proximity to buildings or homes. Pavement near buildings or homes, such as in parking lots, provides a semi-impermeable cap above the subsurface which may trap contaminant vapors and cause them to pool. The Permittee must address the concern of vapor contaminants beneath pavement and near buildings and homes and address the issue of contaminant vapor migration through utility corridors. Utility corridors provide a conduit for the transport of contaminant vapors. The Permittee must provide a thorough CSM including maps depicting paved areas and all utility corridors in the areas of concern. The Permittee must also evaluate these maps in conjunction with historic soil vapor data and propose sampling locations that will provide characterization of the subsurface below pavement, as well as the utility corridors between the source area and the buildings of concern, in the revised Work Plan.

9. Section 6.1, Soil Vapor Sample Collection and Analysis, page 6-1

Permittee Statement: "The sampling train will also be equipped with an isolation valve positioned between the vacuum pump/field sensors and the SUMMA® canister that will be open during purging to allow for monitoring of purge vapors. This valve will be closed prior to sample collection to ensure that vapor taken into the SUMMA® canister does not flow backwards through the vacuum pump or field sensors."

NMED Comment: The Work Plan must be revised to include the use of a 3-way valve in the location of the "hose barb t-fitting" above the Summa canister in Figure 5. A 3-way valve will ensure that the sample can only be collected from the well side of the sample train and eliminate the possibility of pulling air back from the pump. The proposed separate "isolation" valve is subject to operator error and may lead to the collection of non-representative samples. This was discussed on May 7; KAFB agreed to follow this procedure.

10. Section 6.1, Soil Vapor Sample Collection and Analysis, page 6-1

Permittee Statement: "Based upon calculated volume of the deepest tubing set and sampling train (25 ft x 1/4 in. diameter) and the flow rate of the proposed vacuum pump (0.75 cfm) required to fully purge one bore volume of the tubing is less than one minute. Therefore, the proposed ten minutes of purge time is adequate to purge many bore volumes of the tubing and sample train."

NMED Comment: The proposed 10-minute purge time is excessive and may result in surface air being pulled into the subsurface at shallow sampling point locations. This situation could result in the collection of soil-vapor samples that are not representative of the formation. Therefore, please revise the Work Plan to include purge volumes between one and three bore volumes. This was discussed on May 7; KAFB agreed to follow this procedure.

11. Section 6.4, Reporting, page 6-4

Permittee Statement: "An electronic copy of the validated analytical data will be included. The final report will include:

- Certification by a Facility representative
- Executive Summary, Introduction, and Background Information
- Description of the scope of field sampling activities
- Sampling results included in tables with identifier, date and time of all samples.
- Tables shall also include quality control/quality assurance designation for each sample
- Results of field screening data, in tabular format
- Regulatory criteria
- Description of vapor point construction and lithologic description
- Text summary of data validation procedures and results
- Soil boring logs, as an attachment/appendix
- Specifications for vapor probe construction, as an attachment/appendix
- Survey data, as an attachment/appendix
- Waste disposal documentation, as an attachment/appendix
- Validated analytical data deliverable in electronic format such as Microsoft Excel, Microsoft Access database, or another compatible format.
- Tables, Figures, and Appendices as appropriate

- Conclusions and recommendations”

NMED Comment: Based on prior issues with missing information in submittals, NMED is clarifying what it requires for this and all future submittals. In addition to the information listed above, the Permittee is required to include the following:

- The response to NMED’s comments must be included as Appendix A of each document revision.
- Descriptions of all field activities performed for the project must be provided. References to QAPPs, SOPs, or work plans are not acceptable. All deviations from the approved work plan must be discussed and justified in a Deviations section.
- Wells must be consistently referred to by the same name/designation in all sections of the text, all tables, and all figures. The designation must match that provided in the digital analytical data files, as well.
- Sampling data tables must include the LOQ (PQL) and reporting detection limit for each analysis.
- Sampling data tables must include the appropriate screening levels for data comparison.
- Analytical data tables in digital format must include a column that indicates which analytical data report the specific sample information can be found. This link must correspond to the analytical data report file name.
- Data from analyses where the LOQ exceeds the VISL are data quality exceptions and must be identified as such in all tables and figures.
- Analytical data provided in digital format such as Excel or Access files must be provided in a sortable, searchable format. In other words, previous reports have provided digital data in the same format as the tables in the text. These tables are not sortable or searchable. Provide the tables in a standard database format.
- Analytical data packages must be submitted in accordance with Permit Section 6.5.18.2, Laboratory Deliverables.
- All tables, figures, and appendices must be appropriately numbered and titled.
- Every page of every submittal, including all pages within all sections and appendices, must be numbered either sequentially or in some other logical format.

This was discussed on May 7; KAFB agreed to follow this procedure.

12. Appendix A, Historic Benzene Concentrations in off-Base Shallow Soil Vapor Monitoring Points, no page numbers

NMED Comment: The Permittee has presented multiple figures with no figure numbers and inaccurate titles in Appendix A, as well as no indication that these unnumbered pages properly belong in Appendix A or are part of this Work Plan. For instance, each of the five figures in the appendix specifies sample locations at 15-25 feet bgs. The first two figures of the appendix show data for samples collected from 25 and 30 feet bgs. The other three figures of the appendix only show data for samples collected from 25

feet bgs. Two of the figures contain a graphed line for "Soil Vapor Monitoring Points Sealed" with no explanation or indication as to the subject of the reference. The tables in Appendix A include similar issues.

Based on the data provided in the tables, it appears that there were issues with the data quality. Specifically, the majority of the data presented in the EDB table as nondetect had MDLs and/or LOQs that exceed the screening level, some up to four orders of magnitude. Section 6.5.18 of the KAFB RCRA Permit states, "[a]nalytes conducted with detection limits that are greater than applicable background or regulatory cleanup levels as applicable shall be considered data quality exceptions, and the reasons for use of the elevated detection limits shall be reported to the Department; results based on these data quality exceptions may not be accepted by the Department."

The data cannot be used to confirm that concentrations of EDB in soil vapor are below the screening level. This issue potentially masks detections and the data must not be utilized for drawing conclusions or guiding work. The data must be called out in the table (e.g., footnotes, highlighting, etc.). The potential for masking detections must also be discussed in the text of the document in which the data is presented.

Also, the Appendix title, Historic Benzene Concentrations in off-Base Shallow Soil Vapor Monitoring Points, is not accurate. EDB data is presented in the Appendix, as well. Please provide accurate titles for appendices.

The Permittee must correct any discrepancies, provide indications of data quality exceptions in tables and figures, provide table and figure numbers, and include sequential, or otherwise logical, page numbers for all pages in the revised Work Plan. This was discussed on May 7; KAFB agreed to follow this procedure.

13. Appendix B, Second Quarter 2019 off-Base Soil Vapor Monitoring Results, inaccurate page numbers

NMED Comment: The Permittee has presented multiple tables with inappropriate table numbers and inaccurate footers in Appendix B, as well as no indication that these pages are properly part of Appendix B or part of this Work Plan. In addition, for tables presenting analytical data, as Table 2-3 does, include a column showing the appropriate screening levels to which the data were compared. The tables in Appendix B also contain footnote definitions for terms that are not included. Please remove extraneous information from the tables, add screening level data to the analytical table, and provide appropriate table and page numbers in the revised Work Plan. This was discussed on May 7; KAFB agreed to follow this procedure.

14. Appendix C, Soil Vapor Monitoring Location Maps and Summary Analytical Results, April – June 2019, inaccurate page numbers

NMED Comment: The Permittee has presented figures with inappropriate figure numbers in Appendix C, as well as no indication that these unnumbered pages are properly part of Appendix C or are part of this Work Plan. It is unclear why these figures were included in the Work Plan, because they were only referenced once, but with no discussion or any indication that the Permittee utilized them to aid in selection of the proposed soil vapor monitoring points. Please correct the Appendix and provide a discussion of the purpose of the data provided in the Appendix in the Revised Work Plan. This was discussed on May 7; KAFB agreed to follow this procedure.