



Certified Mail - Return Receipt Requested

February 1, 2023

Colonel Jason F. Vattioni
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Kirtland AFB, NM 87117

Ms. Melissa Clark
Civil Engineer Office
377 MSG/CEIE
2050 Wyoming Blvd SE
Kirtland AFB, NM 87117

**RE: SECOND DISAPPROVAL
BIOVENTILATION CONSTRUCTION AND INITIATION REPORT REVISION 1
BULK FUELS FACILITY SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO
EPA ID# NM6213820974
HWB-KAFB-20-001**

Dear Colonel Vattioni and Ms. Clark:

The New Mexico Environment Department (NMED) is in receipt of the Kirtland Air Force Base (Permittee) *Bioventilation Construction and Initiation Report Revision 1* (Report), dated April 2021. NMED has reviewed the Report and hereby issues this Second Disapproval with the following comments.

GENERAL COMMENT

The Report is disapproved because many of the comments in the NMED's September 23, 2020 *Disapproval* were not addressed. Rather, the Permittee asserts that the comments will be addressed in the Final Bioventilation Pilot Testing Report (Final Report) or Corrective Measures Evaluation (CME). The Permittee is allowed to address these comments in the Final Report but not the CME. In addition, since bioventing technology is unlikely to meet the remedy threshold criteria based on the available data, further discussion regarding the potential viability of this technology is not useful. Therefore, no response or revision to the Report is necessary or requested.



SPECIFIC COMMENTS

1. Permittee's Response to NMED's Disapproval Comment 2, dated September 23, 2020

Permittee Statement: "This report is intended to document the work performed under this approved scope. This pilot was never intended to delineate the extent of free phase hydrocarbons and, therefore, this discussion is not included in the revised report."

NMED Comment: Comment 2 of the Disapproval intended to clarify the scope of the Corrective Measures Evaluation (CME) because the purpose of the pilot test was to support the CME and further develop a full-scale remediation system. Comment 2 states, "[e]ither confirm that the extent of contamination has been fully delineated through previous investigations in the revised Report or submit a work plan to delineate the extent of the vadose zone contamination (e.g., Laser-Induced Fluorescence), if necessary." Clarify whether the extent of contamination has been fully delineated through previous investigations in the Final Report.

2. Permittee's Response to NMED's Disapproval Comment 3, dated September 23, 2020

Permittee Statement: "The bioventing pilot test was concluded in November 2020 due to low oxygen utilization rates and operational concerns (NMED correspondence dated February 11, 2021)."

NMED Comment: NMED's *Technical Memo for Bioventing Pilot Test November 23rd 2020 Shutdown*, dated February 11, 2021, states, "NMED concurs with the decision to terminate the bioventilation pilot test based on concerns regarding the mobilization and potential migration of soil vapor contamination to off-site locations." The pilot test was prematurely terminated before the technology was fully evaluated. State whether the data collected from the long-term pilot test was sufficient to draw a conclusion regarding the viability of this technology in the Final Report.

3. Permittee's Response to NMED's Disapproval Comment 4, dated September 23, 2020

Permittee Statement: "Analysis of the bioventing pilot test will be provided as a standalone document as the Final Bioventilation Pilot Testing Report."

NMED Comment: The Final Report must be submitted no later than **May 31, 2023**.

4. Permittee's Response to NMED's Disapproval Comment 5, dated September 23, 2020

Permittee Statement: "This information on the history of the fuel release was presented in the RFI Phase I Report (Kirtland AFB, 2018b). The background discussion in this report focused on what was applicable to the pilot. No changes were made to the text."

NMED Comment: Section 6, *References*, page 6-1, does not list the referenced RFI Phase I Report. Regardless, the Report is not required to be corrected. However, the information regarding fuel release is relevant to the pilot test; therefore, it should have been discussed in the background section of the Report. Include the information in the Final Report.

5. Permittee's Response to NMED's Disapproval Comment 6, dated September 23, 2020

Permittee Statements: "A letter outlining [SVE system] decommissioning procedures was submitted to the Albuquerque Environmental Health Department on November 20, 2015." and, "The potential viability of this technology alone or with SVE will be evaluated in the CME, as appropriate."

NMED Comment: The referenced letter was submitted to the Albuquerque Environmental Health Department. The letter should also have been submitted to NMED. Regardless, the benefits of operating both soil vapor extraction (SVE) and bioventing systems concurrently cannot be evaluated now because the SVE was already decommissioned. There are limited remedial options to address vadose zone contamination. An evaluation of SVE with and/or without bioventing technology will be required for the CME.

6. Permittee's Response to NMED's Disapproval Comment 11, dated September 23, 2020

Permittee Statement: "The statement in ES-4 has been revised to state "[t]he overall average oxygen utilization rate for the wet respiration test was 0.316% per day. Oxygen utilization rates were marginally higher during the dry respiration testing compared to the wet respiration testing. The need to add moisture will be further assessed during the long-term bioventing pilot test." Additionally, the following statement was removed from Section 4.2.1: "Oxygen utilization rates were marginally higher during the dry respiration testing compared to the wet respiration testing indicating that the moisture addition did not increase the rate of biodegradation.""

NMED Comment: The Permittee's response is not appropriate. The Disapproval Comment 11 states, "the results obtained from wet respiration test are not reliable and must not be used for decision-making purposes. The Permittee must not draw any conclusions related to the wet respiration test," and "NMED agrees that further assessment through the long-term pilot test is appropriate and supports the injection of cool mist rather than pressurized

water.” Since the Permittee did not evaluate the effects of wet respiration testing during the long-term pilot test, the effects remain unknown and the data remains unusable. The discussion regarding the wet respiration testing must not be included in the Final Report.

7. Permittee’s Response to NMED’s Disapproval Comment 16, dated September 23, 2020

Permittee Statement: “Field records [for chlorine readings] have been provided in the revised report within Appendix B.”

NMED Comment: Appendix B contains multiple pages of information that are not relevant to chlorine readings. It is difficult to locate a specific information in the appendix. Include a table of contents for appendices where multiple documents are included. Address this comment in future reports with appendices, where applicable.

8. Permittee’s Response to NMED’s Disapproval Comment 29, dated September 23, 2020

Permittee Statement: “Laboratory samples were analyzed as specified in the approved work plan. The bioventing pilot test was concluded in November 2020 due to low oxygen utilization rates and operational concerns (NMED correspondence dated February 11, 2021).”

NMED Comment: Comment 29 of the Disapproval states, “it is appropriate to analyze EDB samples using both Methods CARB 422 and TO-15. Include this provision during the long-term pilot test.” Although the pilot test was concluded in November 2020, the long-term pilot test was initiated in October 2019; the long-term pilot test was conducted for a full year. However, the statement does not clearly state that EDB samples were analyzed using both Methods CARB 422 and TO-15 during the long-term pilot test. In the Final Report, clarify whether EDB samples were analyzed using both methods; otherwise, provide a justification for why the direction provided by Comment 29 was not followed.

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No response or revision to the Report is necessary or requested. In order to provide the Permittee sufficient time for the response, the due date for the Final Report required by Comment 3 above is extended to **May 31, 2023**.

Should you have any questions or wish to meet with us to discuss these comments, please contact me at (505) 629-6494.

Sincerely,

Rick Shean Digitally signed by Rick Shean
Date: 2023.02.01 06:30:30 -07'00'

Rick Shean,
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
B. Wear, NMED HWB
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