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Certified Mail - Return Receipt Requested

January 19, 2023

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Ms. Melissa Clark
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377 Civil Engineer Division
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Kirtland AFB, NM 87117

**RE: REQUEST FOR CLARIFICATION REGARDING NMED NOTICE OF DISAPPROVAL
FOR THE WORK PLAN FOR GROUNDWATER MONITORING
BULK FUELS FACILITY SPILL
SOLID WASTE MANAGEMENT UNIT ST-106/SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO
EPA ID# NM6213820974
HWB-KAFB-21-003**

Dear Colonel Vattioni and Ms. Clark:

The New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) received the Kirtland Air Force Base (Permittee) letter requesting clarification regarding NMED's November 8, 2022 *Notice of Disapproval Work Plan for Groundwater Monitoring* (NOD) on December 28, 2022 (Request). NMED's letter requires modifications to the Permittee's sampling procedures to ensure that accurate, precise, and representative data are collected in compliance with the KAFB RCRA Permit. The Permittee requests clarification on several of the required modifications to the Work Plan for Groundwater Monitoring (Work Plan).

First, the Permittee requests that NMED revise the NOD. The Permittee cites historical approvals and decision-making as the reason to revise the NOD. They further state that comments provided in the NOD will significantly impact the "RCRA process". The purpose of the comments provided in the NOD is to return this project to compliance with the KAFB RCRA Permit (Permit). Permit Section 6.5 requires the collection of accurate, precise, and representative data. NMED will review facility responses to comments included in NODs, Disapprovals, and Approvals with Modification but does not revise documents after issuance.

Second, the Permittee demonstrates confusion understanding the difference between the ongoing annually-updated monitoring work plan and the work plan detailing the required replacement of passive sampling systems with active sampling systems. The requirement for the system replacement work plan does not contradict NMED's requirement for a consolidated groundwater monitoring work plan. While the replacement of the passive sampling systems is

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required to be discussed in the revised groundwater monitoring work plan, the brief discussion that has been requested in the NOD does not equate to a full work plan. Therefore, a separate work plan detailing the replacement equipment, methods, and timeline and in accordance with NMED's 2020 guidance document titled *General Reporting Guidelines for Corrective Action Documents* (Reporting Guidelines) must be submitted for review and approval prior to conducting the installation of active sampling systems as directed in the NOD.

Attachment 1, Concern A, provided with the Request, suggests that the representativeness of data is not based on evaluation of acquired data, but rather only on historic work plan approvals, and that past decisions cannot be altered when current conditions warrant those changes be made. If this were the case, then the Permittee would not have been allowed to reduce sampling frequencies or reduce the number of analytes over the past few years. Also, while the May 2017 letter approved the use of passive sampling techniques for specific wells, it did not mention the 2016 data or the evaluation that was included as an appendix to the work plan. The plan referenced by the Permittee was approved outside of the Hazardous Waste Bureau without appropriate technical review and relied on the assumption that a valid unbiased evaluation had been performed by the Permittee. An appropriately performed technical review would have identified the deficiencies in the evaluation of the data, and the Hazardous Waste Bureau would have concluded that the passive sampling data did not correlate with the active sampling data. As such, previous approval of techniques proposed in the past does not dictate that the methods cannot be changed upon determination that a more accurate, defensible, and representative approach should be used. The NOD comments must be addressed in the revised Work Plan.

Attachment 1, Concern B, requests clarification on statements requiring the Work Plan to be a stand-alone document. NMED requires all work plans to be stand-alone documents to ensure that NMED, contractors, and the public have all the required information to review or complete the work to be undertaken to avoid omissions and inappropriate procedures. NMED's *Reporting Guidelines* describe what must be included in the Work Plan.

NMED does not understand why the Permittee would attach previous work plans and reports to the newly proposed work plan. Please let NMED know if the Permittee's intent was to have HWB review the older documents and is willing to be charged a review fee for each attached work plan and report per NMED's Fee Regulations, as all submittals are reviewed in their entirety. Also, the Permittee must provide technical justifications for proposed future work rather than for proposed work included in previous work plans and reports. The purpose of the new and consolidated work plan is to ensure that the collection of accurate, precise, and representative data is performed moving forward. The Permittee should note that previous work plans and reports have no bearing on NMED's current requirement for the use of improved methods for collecting accurate, precise, and representative data proposed in this Work Plan.

Regarding the requirement for the document to be stand-alone, the Permittee states, "...the approved RFI [RCRA Facility Investigation] Phase I Report was developed to summarize 15 years of restoration activities and presents a comprehensive conceptual site model based on that information. The Air Force typically references this report when discussing site conditions and activities that do not directly impact the evaluations presented in a specific project document. The Air Force respectfully requests additional clarification from NMED on how historical decisions and approvals should be used from a project administrative perspective moving forward." While the Permittee references the "approved" RFI Phase I Report (RFI) and comprehensive conceptual site model, NMED specifically stated in the September 25, 2020 Approval with Modifications for the RFI that, "the CSM [comprehensive conceptual site model] presented in this Phase I RFI Report is not approved." The 2020 Approval with Modifications goes on to exclude much of the data presented in the RFI from being used for decision-making purposes. The Permittee must not rely on data and models that have been prohibited from use by NMED.

Future decisions at this site will be made based on the most accurate, precise, and representative data that can be collected. Upon determination that such data are not being collected, NMED is required to make the necessary changes to ensure that accurate, precise, and representative data are collected moving forward.

NMED does not agree that a long history of data acquisition indicating groundwater contamination at the site alone is a measure of corrective action progress. Failure to collect accurate, precise, and representative data as directed going forward, however, will extend the time required to end the investigation phase of this project. The Permittee has not provided any groundwater remediation proposals in the source area of the plume for over 20 years, prematurely shut down the vadose zone remediation efforts without HWB approval and has yet to define the full extent of the light non-aqueous phase liquids (LNAPL) at the site. These shortcomings have arguably created more significant delays in corrective action progress at the site than extended data collection activities.

The Permittee also suggests that evaluations of data should consider historical decisions; NMED does not agree with this suggestion. Data evaluation conducted by the Hazardous Waste Bureau is, and will be, based on the data and the data quality, not historical decisions. In addition, the Permittee's anticipation of a five-year delay to collect the minimum required eight quarters of data is greatly exaggerated.

In Attachment 1, Concern C, the Permittee "asserts that the use of passive sampling technologies complies with the Air Force's RCRA permit and is RCRA-compliant." As demonstrated by NMED's evaluation of the data provided by the Permittee, passive sampling is currently not collecting accurate, precise, and representative samples, as required by the KAFB RCRA permit. As the evaluation clearly shows, EDB samples failed to meet the Permittee's own data quality objectives (DQOs) for up to 83% of the samples in each sampling event. In addition, benzene samples failed to meet the Permittee's DQOs for up to 100% of the samples in a

sampling event. EDB and benzene are primary drivers for the corrective action conducted at the site. Again, the Permittee established the DQOs for the evaluation, then after the data failed to correlate, the Permittee selectively chose and misrepresented the data, thereby biasing the evaluation to inaccurately suggest a correlation. This does not support the use of passive sampling.

NMED, EPA, and industry all require that any alternative sampling method or analytical method be able to provide accurate, precise, and representative data, especially at the level of compliance. The sample pair data provided by the Permittee does not currently meet this standard. For example, correlation of active vs passive sampling data for EDB within the relative range of the screening level by linear regression resulted in a correlation coefficient (R^2) value of 0.0055; industry standard to demonstrate correlation is an R^2 value of 0.9 or greater. Of the 22 sample location pairs provided by the Permittee for evaluation, three would have been mischaracterized if the data had been used to determine compliance.

In Attachment 1, Concern D, the Permittee states that NMED's evaluation was based on 2016 data. While the Permittee's evaluation was based on data collected in 2016, NMED's evaluation was based on data collected in 2016 and 2017. The 2017 data constitutes new information to the administrative record. At the time, NMED based the approval on the assumption that the Permittee submitted a valid and unbiased evaluation of the active and passive sampling data pairs. Upon HWB's evaluation of the data, including the 2017 data that was not included in the Permittee's evaluation, it was evident that the data evaluated was cherry-picked to support the Permittee's position, one that NMED does not currently share.

The Permittee then states, "the RPDs [relative percent differences] presented by NMED as an attachment to the 2022 NOD consider samples that were either non-detect (ND) or estimated concentrations for 1,2 Dibromoethane. The practice of using results at or below the detection limit is not consistent with NMED's explanation for how RPDs were calculated in the attachment. From 2022 NOD: *"RPDs were calculated for all concentration data with values greater than the detection limit"*." NMED re-evaluated the data without any ND or estimated concentrations and the results demonstrate a lack of correlation of the data: the linear regression resulted in an R^2 value of 0.0055, orders of magnitude below the acceptable correlation coefficient of 0.9. See Figure 1 below.

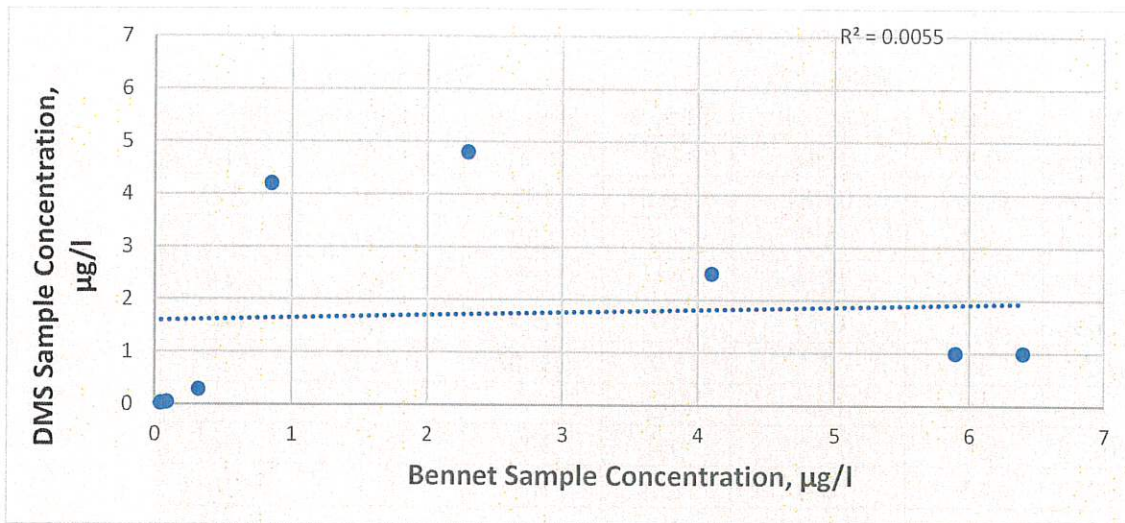


Figure 1: Linear regression of for sample pairs with both results greater than the detection limit.

The Permittee's issue related to use of non-detect or estimated concentration in the evaluation also applies to their own evaluation of the 2016 data. The Permittee not only utilized all ND data pairs in their evaluation, they also misrepresented the NDs as equivalent values for which an RPD could be calculated, resulting in RPDs for each ND pair of 0 and thereby biasing the RPD averages low. In addition, the RPD averages presented by the Permittee in their evaluation are not acceptable as criteria for correlation by NMED, EPA or industry; RPDs are only applicable to the individual sample pairs they represent.

The Permittee questions the validity of the RPD evaluation, which is the exact evaluation that they depended on to demonstrate that the passive sampling data correlated well with the active sampling data. Therefore, based on the Permittee's assertion, their evaluation did not demonstrate that the passive sampling data is accurate, precise, or representative. If this is the case, passive sampling methods should not have been proposed for use at KAFB. In addition, the RPD evaluation was established by the Permittee and was not the sole line of evidence used by HWB as the Permittee suggests. NMED's evaluation had to evaluate the RPDs since the Permittee's evaluation did, but NMED also depended on linear regression of the sample data.

The Permittee appears to use selective guidance to imply that NMED's evaluation is biased by outlying data or variations in duplicate samples that often exceed 50% or more. As shown in Figure 1 above, outliers are not the issue with the failed correlation. NMED evaluated all the duplicate data provided with the 2016 and 2017 active vs passive evaluations; for the 10 duplicate EDB samples provided, the highest RPD was 26.6. Also, for the five duplicate benzene samples, the highest RPD was 11.1. See Table 1 below. Therefore, the data indicates that the cited guidance does not apply to the data collected at the site and that the significant differences in concentrations between active and passive sampling are not related to outliers or duplicate sample variations.

Table 1: Duplicate sample comparison

Well	EDB, ug/L			Benzene, ug/L		
	Regular	Duplicate	RPD, %	Regular	Duplicate	RPD, %
106005	0.39	0.42	7.4	510	570	11.1
106008	0.062	0.081	26.6	130	120	8.0
106014	4.3	4.2	2.4	180	190	5.4
106035	0.15	0.16	6.5	ND	ND	NA
106036	0.21	0.22	4.7	ND	ND	NA
106059	3.6	3.4	5.7	13000	12000	8.0
106063	0.072	0.06	18.2	3	3	0.0
106226	0.032	0.029	9.8	ND	ND	NA
106059	5.9	6.4	8.1	ND	ND	NA
106059	1	1	0.0	ND	ND	NA

The responsibility to demonstrate that any alternative sampling method or analytical method produces accurate, precise, and representative data falls on the Permittee. At this time, the Permittee cannot successfully defend a claim that the data is accurate, precise, and representative when 60 % of their EDB sample pairs and 70% of benzene sample pairs fail to meet their own established DQOs, with RPDs up to 175. Once again, a historic work plan approval does not relieve the Permittee of the Permit requirement to collect accurate, precise, and representative data.

In Attachment 1, Concern E, the Permittee requests clarification on the requirement to reimplement Total Petroleum Hydrocarbon (TPH) analyses into the analytical suite for groundwater at KAFB. Section 6.3 of NMED's 2022 *Risk Assessment Guidance for Investigations and Remediation* (RA Guidance) provides clarification on this topic. TPH concentrations must be analyzed and compared to the screening levels provided in the RA Guidance, and TPH data will be included for site decision making purposes.

In regard to the request for an extension, the NOD was in review with NMED senior management and upon issuance, the due date for the revised work plan was not extended appropriately. Therefore, NMED hereby approves the extension request and provides the Permittee with an additional 45-days to complete the revisions. The revised Groundwater Monitoring Work Plan that addresses all comments provided in the NOD must be submitted no later than **March 6, 2023**. The work plan to replace the passive sampling systems with active sampling systems must be submitted no later than **April 17, 2023**.

Col. Vattioni and Ms. Clark
January 19, 2023
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Should you have any questions, please contact Ben Wear of my staff at (505) 690-6662.

Sincerely,

Rick Shean

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Rick Shean
Chief
Hazardous Waste Bureau

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