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**Certified Mail - Return Receipt Requested**

April 11, 2022

Colonel Terence G. Taylor  
Commander, 27th Special Operations Wing  
100 Air Commando Way, Suite 100  
Cannon Air Force Base  
New Mexico 88103-5214

**RE: DISAPPROVAL  
RCRA FACILITY INVESTIGATION AT DP034  
CANNON AIR FORCE BASE, NEW MEXICO  
EPA ID #NM7572124454  
HWB-CAFB-20-003**

Dear Colonel Taylor:

The New Mexico Environment Department (NMED) has received the Cannon Air Force Base (Permittee) *RCRA Facility Investigation at DP034* (Report), dated June 18, 2020. NMED has reviewed the Report and hereby issues this Disapproval. The following comments must be addressed.

**COMMENTS**

**1. Section 4.11, Investigation Derived Waste Management, Page 4-5**

**Permittee Statement:** "Based on the analytical results, solid waste and liquid wastes were characterized as nonhazardous. As a result of the COVID-19 virus pandemic that developed in February/March 2020 within the United States, transport and disposal of the wastes will occur when travel restrictions associated with COVID-19 are lifted. Associated documentation will be provided in an addendum to this RFI."

**NMED Comment:** All waste characterization and disposal documentation must be included in the revised Report as an additional appendix with appropriate references in the section discussion. The section discussion must also be revised to discuss the IDW disposal. Revise the Report accordingly.

SCIENCE | INNOVATION | COLLABORATION | COMPLIANCE

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**2. Section 4.13, Deviations from Work Plan, Page 4-6**

**NMED Comment:** The following issues must be addressed as follows:

- a. The Permittee stated, "Test America Laboratories identified as the analytical laboratory in the Work Plan, was unable to meet the schedule for the project, so GEL Laboratories, LLC, a Department of Defense Environmental Laboratory Accreditation Program-certified and NMED-approved analytical laboratory located in Charleston, South Carolina, replaced Test America Laboratories." Remove the reference to NMED approval of the sample analysis laboratory. NMED document approval only applies to a scope of work presented in a work plan or report. NMED does not approve contract analytical laboratories. Revise the statement accordingly.
- b. The geophysical investigation resulted in discovery of five discrete burial pits, each defined as up to five feet in depth with varying dimensions. The pits are relatively small but appear to have been evaluated collectively rather than individually as discrete pits. Revise the Report to discuss both the expansion of the proposed boring locations from six to ten borings and the decision not to remove the debris in the burial pits and collect confirmation samples. The Report must be revised accordingly.
- c. Ensure that all field work variances are accurately documented in Appendix I of the revised Report as cited in the section or remove the reference. Revise the Report accordingly.

**3. Section 5, Regulatory Criteria, Page 5-1**

**NMED Comment:** The following regulatory criteria issues were identified in the Report and must be addressed as follows:

- a. The Permittee cites NMED's June 2019 *Risk Assessment Guidance for Site Investigations and Remediation* (RA Guidance) as the regulatory guidance document throughout the narrative of the Report. However, NMED soil screening levels (SSLs) used for evaluation of contaminant of concern (COC) concentration data on Tables 6.2, 6.3, 6.5, 7.1, 7.2, 7.3, and the Appendix J Soil Analytical Summary table were noted as sourced from NMED's March 2017 RA Guidance. The Report must be revised to use and accurately cite current NMED and United States Environmental Protection Agency SSLs for evaluation of sample chemical analytical data for all COCs listed on tables and figures and in narrative discussions.
- b. The human health risk assessment that was proposed in Sections 3.6.4 through 3.6.6 of the NMED-approved May 2019 *RCRA Facility Investigation Work Plan at DP034-*

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*Revision 1* (Work Plan) was not completed as proposed. The Permittee has only compared COC concentration data to site specific soil background concentrations and residential SSLs. Comparison of COC concentration data to residential SSLs and facility-specific background concentrations alone is not sufficient to meet the RA Guidance standard for a complete site risk assessment. Based on the detection of COCs in site soil samples, which are likely related to its use as an aircraft and vehicle part disposal pit, the cumulative risk screen evaluation proposed in the Work Plan is warranted and required. Revise the section to discuss in detail the required regulatory procedures for appropriate risk screening evaluation as proposed in the Work Plan and as specified in the RA Guidance. A complete risk screening evaluation is an essential component to proposing an appropriate scope of work for any additional investigation or corrective action, as well as for determining the corrective action status for a site. The Report must be revised accordingly.

- c. The Permittee identified resident, industrial worker, and construction worker as potential site receptors in Section 3.6.1 of the Work Plan. These site receptors and applicable exposure pathways are also identified on Report Figure 7.2, Site Conceptual Exposure Model DP034. The required cumulative human health risk screening evaluation must be completed for each identified human health site receptor as proposed in Work Plan Section 3.6.6. The Report must be revised accordingly.
- d. NMED has identified additional issues with the screening level and background evaluation presented in the Report. For example, various COCs were detected in investigation soil samples, but as the detections were below respective SSLs, they were not retained for risk screening evaluation. For inorganics, if a metal was above background but below the SSL, it was also not retained for further evaluation. This is inconsistent with the constituent of potential concern (COPC) selection process proposed in the Work Plan and specified by the RA Guidance. To clarify, for inorganics, if a concentration is above background, it must be retained as a COPC and carried forward into the cumulative risk screening evaluation. Also, all organics detected in site soil must be retained as COPCs for the cumulative risk screening evaluation regardless of whether they exceed respective SSLs. Appropriate procedures for COPC selection and evaluation are specified in detail in current November 2021 RA Guidance Sections 2.8.3 and 2.8.4. The section must be revised to discuss in detail the appropriate RA Guidance procedures used for background evaluation and COPC selection. The results of an appropriate COPC evaluation and risk assessment must be documented in the revised Report. The Report must be revised accordingly.
- e. Risk for radionuclides detected in site soil was not evaluated in accordance with Work Plan Section 3.6.7, Radiologicals. The Report must be revised to include a

discussion of the radionuclide risk evaluation proposed in the Work Plan and to include the results of the evaluation. If the radionuclides are being evaluated as metals, the risk must be added to the cumulative human health risk screening. Furthermore, as radiological material is present at the site, a radiation dose assessment must be included in the revised Report, which must demonstrate that the total effective dose equivalent to potential human receptors meets acceptable limits. The Report must be revised accordingly.

- f. As allowed by 10 Code of Federal Regulation (CFR) 40.13(c)(4), revise the section to clarify that, if a magnesium-thorium alloy is less than four percent by weight, the material is not considered an important quantity of radiological source material and is exempt from regulatory and disposal requirements. Under this regulatory criterion, a license would not be required for on-site burial of such materials. Revise the Report accordingly.
- g. Investigation findings indicate that some of the buried debris pit materials may include radioluminescent aircraft dials and switches. These radioluminescent materials contain radium-226. Under 10 CFR 20.2008, products containing radium-226 may not be abandoned and may only be disposed of at a facility authorized to accept radioactive material or transferred to an entity licensed to receive radium (see 10 CFR 30). Leaving the radium-containing dials and switches in place, and not in a managed area is inconsistent with federal regulations. The Report must be revised to discuss the applicable federal regulatory requirements for management of items containing radium and to address this potential issue at DP034.

#### 4. Section 6.1.2, Field Sample Screening Results, Pages 6-1 and 6-2

**NMED Comment:** NMED has identified a data gap in the completed radiological survey that only addresses gamma radiation. The presence of magnesium-thorium containing materials along with the radioluminescent equipment would result in the primary radionuclides of concern being thorium and radium. Thorium (Th-230, Th-232, and Th-228) and radium (Radium-226), along with daughter compounds, are primarily alpha and beta emitters with progeny emitting some gamma radiation; therefore, a walk-over gamma survey using a sodium iodide detector would likely not result in the detection of elevated radiological contamination, as the equipment is not capable of detecting alpha and beta radiation. Revise the Report to address this issue and the imparted uncertainty related to the radiological survey for the site. The Report must be revised accordingly.

#### 5. Section 6.1.3.1, VOCs [Volatile Organic Compounds], Pages 6-2 and 6-3

**Permittee Statement:** "The remaining VOCs occurred sporadically at isolated locations at concentrations that did not suggest the presence of a contamination source."

**NMED Comment:** VOCs were detected at most sample locations and depths. Many of the VOCs detected are typically associated with petroleum hydrocarbon contamination (e.g., ethylbenzene, naphthalene, and xylenes), and oil range organics were detected in site soils. Furthermore, given the identified nature of site use as an aircraft and vehicle part disposal pit, the VOC detections are likely associated with the identified site use and must be carried forward in the cumulative risk screen evaluation in accordance with RA Guidance Section 2.8.3.1, Organics and Chemicals without Background Data. The Report must be revised accordingly.

**6. Section 6.1.3.4, Metals, Page 6-4**

**Permittee Statement:** "Although metals were detected in all soil samples, only arsenic (9.94 milligrams per kilogram [mg/kg]) and iron (78,700 mg/kg) in soil sampled from DP034-02 at 5 feet bgs [below ground surface] exceeded background values and the NMED SSLs (7.07 mg/kg and 54,800 mg/kg, respectively)."

**NMED Comment:** The background evaluation was not conducted appropriately as proposed in the Work Plan and does not meet RA Guidance Section 2.8.3.2, Organics and Chemicals with Background Data, specifications for appropriate evaluation. In addition to iron and arsenic, other metals have exceeded their respective background screening levels and must be retained as COPCs for the cumulative risk screening evaluation. The revised Report must include a complete background evaluation in accordance with the RA Guidance.

**7. Section 7.4, Screening Level Human Health and Ecological Risk Assessments, Page 7-5**

**NMED Comment:** The following risk assessment issues must be addressed as follows:

- a. The human health risk evaluation has not been addressed in the Report in accordance with the scope of work proposed in the Work Plan, and therefore does not comply the RA Guidance. The Report must be revised to include a complete risk assessment for all identified site receptors and exposure pathways. Revise the Report accordingly.
- b. Per RA Guidance, Volume II, Soil Screening Guidance for Ecological Risk Assessments (Volume II), Section 2.0, Scoping Assessment, the Volume II, Attachment A, Screening Level Ecological Risk Assessment Scoping Assessment Site Assessment Checklist must be completed to support the ecological risk conclusions addressed in the section discussion. The completed checklist must be included as an additional appendix in the revised Report with appropriate reference in the section discussion. Revise the Report accordingly.

## 8. Section 8, Recommendations, Page 8-1

**NMED Comment:** The following identified issues must be addressed as follows:

- a. The Report scope of activities basis indicates that the purpose of the investigation was to define the nature and extent of the debris pit and subsurface contamination and to identify any unacceptable risk to human health or the environment (see Report Section 3). However, the site characterization documented in the Report has resulted in inconclusive information with respect to what type of radiological materials are buried in the pit (e.g., magnesium-thorium alloy aircraft parts and/or radioluminescent aircraft dials and switches). To address this uncertainty, a complete characterization of radiologic materials appears necessary at DP034 to determine if leaving radiological materials in place at the disposal pits, especially for any buried dials and switches containing radium-226, complies with applicable regulations. The Report recommendations and any other affected Report sections must be revised to address this issue.
- b. While the report indicates that the asphalt cover prevents exposure to radioactive debris, the Report recommendations do not indicate whether the controls include maintaining the asphalt cover. To address this, the radiation dose assessment required in NMED Comment 3e of this letter must include evaluation of the site with and without an asphalt cover to determine whether additional engineering controls are necessary to ensure protection of any current and future site receptors. The Report must be revised accordingly.

## 9. Appendix A - Field Methods

**NMED Comment:** The Work Plan included in Appendix A that was designated as "Revision 2" must be removed from the revised Report. It is inappropriate to include a Work Plan as an appendix in an investigation report. As required by December 2018 Cannon Air Force Base Hazardous Waste Permit (Permit) Sections 6.3.6 and 6.3.7, field procedures must be discussed in the narrative of a report and may be included as an appendix as specified in Permit Section 6.3.14.1, Field Methods, with appropriate references in a report. Including a work plan as the field methods discussion in the appendix does not satisfy this requirement. Furthermore, NMED's June 3, 2019 Approval with Modification RCRA Facility Investigation Work Plan at DP034 Revision 1 response only applies to that document. Any alteration of a work plan following NMED approval negates NMED approval of the document. Therefore, conducting work under an unapproved work plan may result in invalidation of any investigation data, findings, and/or conclusions, and may result in NMED directives to perform additional work. Any deviations from an NMED-approved scope of work must be addressed in the deviations section of an investigation report. The Report must be revised accordingly.

## 10. Appendix J - Soil Analytical Results Summary, DP034

**NMED Comment:** The following issues were identified and must be addressed as follows:

- a. The methyl tert-butyl ether concentration (0.367 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ )) reported on the Data Summary Table for sample DP034-SB03-1 does not match the data reported in the laboratory analytical report. Review the data reported on the table to ensure it is accurate and revise any other affected tables and figures.
- b. The styrene concentration (0.675  $\mu\text{g}/\text{kg}$ ) reported on the Data Summary Table for sample DP034-SB06-1 does not match the data reported in the laboratory analytical report. Review the data reported on the table to ensure it is accurate and revise any other affected tables and figures.
- c. The benzo(b)fluoranthene concentration reported for sample DP034-SB04-1 on the Data Summary Table does not match the data reported in the laboratory analytical report. Review the data reported on the table to ensure it is accurate and revise any other affected tables and figures.
- d. The indeno (1,2,3-c,d) pyrene concentration reported for sample DP034-SB05-3 on the Data Summary Table does not match the data reported in the laboratory analytical report. Review the data reported on the table to ensure it is accurate and revise any other affected tables and figures.
- e. The Lead-210 concentration reported for sample DP034-SB08-3 on the Data Summary Table does not match the data reported in the laboratory analytical report. Review the data reported on the table to ensure it is accurate and revise any other affected tables and figures. Revise the Report accordingly.
- f. The m,p-xylene concentration reported for sample DP034-SB08-1 on the Data Summary Table does not match the data reported in the laboratory analytical report. Review the data reported on the table to ensure it is accurate and revise any other affected tables and figures. Revise the Report accordingly.
- g. Permit Section 4.3, Chemical Analysis, specifies that preferred method reporting limits are a maximum of 20 percent of the cleanup, screening, or background levels. Reporting limits on the Data Summary Table appear to have exceeded the listed residential SSLs based on the data reported for various samples for 2,6-dinitrotoluene, 4-chloroaniline, hexachlorobenzene, hexachlorobutadiene, hexachlorocyclopentadiene, bis(2-chloroethyl) ether, n-nitrosodi-n-propylamine, and dibenze(a,h)anthracene. This issue has also specifically affected concentration data for benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene at sample

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location DP034-SB05-1. Review all COC reporting limits and ensure they do not exceed cleanup, screening, or background levels for the COCs evaluated during the investigation. All such exceedances must be flagged as data quality exceptions on all data tables and figures and must be discussed in the narrative of the revised Report as investigation uncertainties. The Report must be revised accordingly.

The Permittee must submit a revised Report that addresses all comments contained in this Disapproval. In addition, the Permittee must include a response letter that cross-references where NMED's numbered comments were addressed. The Permittee must also submit an electronic redline-strikeout version of the revised Report showing all changes made to the Report. The revised Report must be submitted to NMED no later than **July 29, 2022**.

If you have any questions regarding this letter, please contact Gabriel Acevedo at (505) 690-5760.

Sincerely,

**Rick Shean**  
Digitally signed by Rick Shean  
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Rick Shean  
Chief  
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB  
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