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**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

February 18, 2019

Colonel Stewart A. Hammons  
Commander, 27<sup>th</sup> Special Operations Wing  
110 E. Alison Avenue, Suite 1098  
Cannon Air Force Base  
New Mexico 88103

**RE: DISAPPROVAL  
RCRA FACILITY INVESTIGATION WORK PLAN AT DP034  
CANNON AIR FORCE BASE, NEW MEXICO  
EPA ID #NM7572124454  
HWB-CAFB-18-003**

Dear Col. Hammons:

The New Mexico Environment Department (NMED) is in receipt of the Cannon Air Force Base (Permittee) *RCRA Facility Investigation Work Plan at DP034* (Work Plan), dated July 12, 2018. NMED has reviewed the Work Plan and hereby issues this Disapproval. The following comments must be addressed.

**GENERAL COMMENTS**

**1. Use of Current NMED Risk Assessment Guidance for Site Investigations and Remediation**

**NMED Comment:** The NMED Risk Assessment Guidance for Site Investigations and Remediation (RA Guidance) in affect at the time field work is completed or the most recent version of the RA guidance must be used for the screening level and risk evaluation at DP034.

## 2. Surveying of Sample Locations, Borings, and Excavation Boundaries

**NMED Comment:** Horizontal coordinate and elevation survey data must be collected for the disposal pit boundaries, final excavation boundaries, confirmation sampling locations, and contingency boring locations during field activities. The confirmation sample, boring, and excavation boundary coordinate location information must be collected using a global positioning system (GPS) device or by a registered New Mexico professional land surveyor. If using GPS, horizontal locations must be measured to the nearest 0.5 foot. Revise the Work Plan to include the collection of coordinate location and elevation survey data at DP034.

### SPECIFIC COMMENTS

#### 3. Section 3.1, Description of Decision Process, Page 3-2

**Permittee Statement:** “If the debris has been removed and the vertical and lateral extent of impact in surrounding soil has been assessed, no threat to human health exists above residential screening criteria, and no potential threat to the environment is apparent, then corrective action complete (CAC) without controls status will be recommended.”

**NMED Comment:** The final risk assessment must also demonstrate that any remaining residual contaminant concentrations fall below NMED’s target risk and hazard index for the industrial and construction worker exposure scenarios. Exclusion of the industrial worker receptor from risk evaluation would only occur if all residual contamination excavation is removed to a depth of one-foot below ground surface (ft bgs), ensuring an incomplete exposure pathway. In the case of the construction worker, it is likely there will be complete exposure pathways (i.e., 0 to 10 ft bgs exposure interval). In most cases, the residential scenario is protective of the construction worker, with the exception of contaminants driven by inhalation, such as manganese. It is noted that the Permittee intends to evaluate all human health receptors during risk evaluation (per Section 3.6.1, Preliminary Site Conceptual Exposure Model); however, a CAC without controls determination is contingent on no adverse risk for all three potential exposure scenarios, not just for the residential receptor. Revise the Work Plan accordingly.

#### 4. Section 3.5, Evaluation of Background Concentrations, Page 3-5

**Permittee Statement:** “Background concentrations of metals at Cannon AFB [Air Force Base] are summarized in Table 1-1. The approach will compare the maximum concentrations detected at a given site to the 95-percent UTL [Upper Tolerance Limit] of the background concentrations. Using this technique, individual samples at the site with high concentrations relative to background levels can be identified.”

**NMED Comment:** The proposed background evaluation for metals infers that if the site maximum concentration is above the UTL, the constituent will be retained as a constituent of potential concern (COPC) for evaluation during the risk assessment. However, if any

refinement of the COPC evaluation is necessary, it must comply with the requirements of RA Guidance Section 2.8.3.2, Comparison to Background-Discrete Samples. Section 2.8.3.2 includes guidelines for additional evaluation of site data distributions to background data distributions (i.e., two-sample hypothesis test). Note that the RA Guidance does not allow for comparison of concentration data to background ranges. Revise the Work Plan to include the complete requirements for background evaluation as outlined in the RA Guidance.

**5. Section 3.6, Human Health Risk Assessment, Page 3-5**

**Permittee Statement:** “In addition, TPH [Total Petroleum Hydrocarbons] data will be compared to NMED TPH Screening Guidelines for Potable Groundwater (GW-1) (Table 6-2 of NMED Risk Assessment Guidance).”

**NMED Comment:** The reference to Table 6-2 of the guidance is correct; however, the reference to the table title is not. The 2017 RA Guidance Table 6.2 does not provide groundwater screening levels for TPH, only soil screening levels. Screening levels for groundwater are listed in RA Guidance Table 6.4, Groundwater and Soil-to Groundwater Levels for TPH Mixtures. Revise the statement to correctly cite the table reference for TPH soil screening levels (SSLs) as provided in the most current RA Guidance.

**6. Section 3.6, Human Health Risk Assessment, Page 3-6**

**Permittee Statement:** “Although DP034 is not used for residential purposes, the residential SSLs are more stringent than other SSLs (e.g., occupational, construction worker). Screening against residential SSLs will account for possible future changes in land use. If residential SSLs are exceeded, then existing concentrations will be compared to industrial SSLs to determine the level of potential risk present.”

**NMED Comment:** The soil exposure intervals for the residential and industrial worker receptors are not the same. The residential receptor exposure interval evaluates soil at 0 to 10 ft bgs, while the industrial worker exposure interval is at 0 to 1 ft bgs. In some cases, where contamination is more concentrated in shallow soils, the resulting exposure point concentration (EPC) for the industrial worker may be higher than the EPC for residential exposure. In addition, for the construction worker, the inhalation pathway often drives screening levels for some chemicals resulting in a more conservative SSL (e.g., manganese) than the residential exposure scenario SSL. Unless additional justification can be provided, all potential complete exposure scenarios/receptors must be evaluated during risk assessment. Revise the Work Plan accordingly.

**7. Section 4.4, Sampling Locations, Frequencies, and Analysis, Pages 4-1 to 4-2**

**NMED Comment:** The following issues were identified during review of Section 4.4 and must be addressed as follows:

- a. Given the small size of the excavation area (15 feet x 15 feet x 5 feet deep), five samples (four sidewall and one floor sample) are likely sufficient to characterize residual contamination. However, consideration must be given to the number of samples necessary for statistical evaluation of data if a refined EPC is needed for the risk assessment. The requirements for EPC calculation are outlined in RA Guidance Section 2.8.5, Calculation of Refined Exposure Point Concentrations. Revise the Work Plan to address the potential need for additional sample collection to adequately address site risk.
- b. Provide a sample depth range for the excavation floor sample(s) (e.g., 0 to 1 ft bgs below the excavation floor). Revise the Work Plan accordingly.
- c. The section discussion states “[a]dditional samples will be determined as the length of the sidewalls increase from 25 lineal feet and the floor of the excavation increases by 500 square feet.” However, Section 1.2, Purpose and Scope, and Section 3.1 specify that the debris pit and surrounding contamination will only be excavated if it is determined that the excavation will be less than 15 feet by 15 feet by 5 feet deep. Based on the proposed confirmation sample collection frequency rationale, additional sample collection would only occur if the excavation more than doubled in size from the specified maximum excavation dimensions. Resolve the apparent work scope discrepancy. Additional confirmation samples must be collected if the excavation is expanded beyond the proposed maximum dimensions. The additional confirmation samples must provide representative data and coverage for the expanded excavation boundaries and the conditions encountered. Failure to provide adequate rationale for not collecting additional confirmation samples following expansion of the disposal pit may result in the need for additional sampling. Revise the Work Plan accordingly.
- d. Provide an additional figure or figures to support the Section 4.4 discussion depicting the location of the proposed disposal pit excavation area, the preliminary locations of the initial excavation sidewall and floor confirmation samples, and the proposed geophysical investigation area boundary. Revise the Work Plan accordingly.

**8. Section 5.2, Geophysical Survey, Page 5-2**

**NMED Comment:** A ground penetrating radar (GPR) survey was mentioned throughout the Work Plan, but no detailed description was provided for this component of the proposed geophysical survey. Similar to what was provided for the electromagnetic survey, include a detailed description of the GPR instrumentation, data collection specifications, and depth range. Revise the Work Plan accordingly.

**9. Section 5.3.2, Excavation, Page 5-4**

**Permittee Statement:** “Backfill material will consist of clean soil from an offsite borrow pit that has been tested and cleared of any contaminants. Clean soils from the borrow pit will be sampled prior to use as backfill materials.”

**NMED Comment:** Provide specifics for fill material sampling frequency and the proposed sample analyses for each collected sample. Include information on where the fill material will be sourced. At a minimum, fill material must be tested for volatile organic compounds, semi-volatile organic compounds, and target analyte list metals. Alternatively, provide certification for “clean fill” with supporting data and borrow pit location information as an additional appendix in the revised Work Plan. Revise the Work Plan accordingly.

**10. Section 5.4, Direct Push Technology Drilling and Sampling, Page 5-6**

**Permittee Statement:** “Activities for each location where drilling is conducted will be recorded on a boring log (See Appendix E) and documented in a field logbook.”

**NMED Comment:** Only Appendix A, Analytical Laboratory Information: Reference Limits and Evaluation Tables and Sample Containers, Preservation, and Hold Times, is provided with the Work Plan. A boring log example has not been provided with the Work Plan. Provide the boring log example as an additional appendix or correct the statement for accuracy. Revise the Work Plan accordingly.

**11. Section 5.4.1, Logging and Field Screening, Page 5-6 through 5-7**

**Permittee Statement:** “In addition, field headspace measurements will be collected if the initial PID [photoionization detector] response and visual and casual olfactory observations identify areas of contamination. If collected, field headspace measurements will be measured from every 2-foot sample interval collected for logging purposes and will be collected by placing a representative portion of the sample in a sealable plastic bag.”

**NMED Comment:** Field screening headspace measurements must be collected at each 2-foot sample interval for the total length of each boring. The collected headspace readings must be recorded on the boring logs. Revise the Work Plan accordingly.

**12. Section 5.4.2, DPT Soil Sampling Procedures, Page 5-7**

**Permittee Statement:** “Soil samples will be collected from 2-foot intervals within each of the six borings. Sample intervals will be selected based on observed staining, elevated PID readings, radiological readings exceeding the instrument critical level, or, if no indication of impact is observed, within the first 5 feet, middle (8 to 12 feet), and bottom 5 feet of each boring.”

**NMED Comment:** Revise the statement to clarify that the six proposed contingency borings for disposal pit characterization will be advanced to 20 ft bgs as proposed in Section 4.4. Following field screening at each two-foot soil sample interval at each boring, samples for laboratory analysis must be collected from the DPT contingency borings as follows:

- a. Within the 0 to 1 ft bg surface soil sample interval at each boring;
- b. at a sample interval within the identified vertical extent of the disposal pit between the 1 to 5 ft bgs depth interval at each boring;
- c. at 5 ft bgs or the depth corresponding to the bottom of the disposal pit at each boring;
- d. at 10 ft bgs and five-foot intervals thereafter at each boring;
- e. at the termination depth of each boring.

If contamination is encountered, the proposed borings must be advanced at least five feet below the deepest detected contamination. As necessary, based on encountered field conditions, additional soil samples must be collected for laboratory analysis to provide complete characterization data for each boring location. Revise the Work Plan accordingly.

### **13. Section 5.5, Waste Management, Page 5-10**

**NMED Comment:** The following issues were noted during review of Section 5.5 and must be addressed in the revised Work Plan as follows:

- a. The acronym for “WCS” has not been defined anywhere in the Report.
- b. Revise the section discussion to include detailed information on soil and aqueous sample collection for waste characterization and respective sample analysis specifications provided in Appendix A, Table A-10: Sample Containers, Preservation, and Hold Times. As necessary, provide appropriate reference to Table A-10 as supporting information.

### **14. Appendix A, Table A-1: Reference Limits and Evaluation Table-VOCs in Soil by 8260B, Pages A-1 through A-3**

**NMED Comment:** The following issues were noted for Appendix A, Table A-1, and must be addressed as follows in the revised Work Plan:

- a. Ensure that the most recent Environmental Protection Agency Regional Screening Levels (EPA RSLs) and NMED Soil Screening Levels (SSLs) are used and accurately cited for the project action levels (PAL) provided on the table.

- b. The listed PAL for 1,2,4-trimethylbenzene (30,000 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ )) is not consistent with the established EPA RSLs for the constituent (300,000  $\mu\text{g}/\text{kg}$ ). Correct the screening level discrepancy.
- c. The given PAL for 1,2-dichlorethane includes a numeric error for the given value (i.e., 8,2520  $\mu\text{g}/\text{kg}$ ). Ensure that the provided EPA RSL is the correct screening level for evaluation of the chemical of concern. Revise the PAL accordingly
- d. The listed PAL for 1,3-dichloropropane (2,600  $\mu\text{g}/\text{kg}$ ) is not consistent with the established EPA RSLs for the chemical of concern (1,600,000  $\mu\text{g}/\text{kg}$ ). Correct the screening level discrepancy.

**15. Appendix A, Table A-2: Reference Limits and Evaluation Table-SVOCs in Soil by 8270D, Pages A-4 through A-6**

**NMED Comment:** Ensure that the most recent EPA RSLs and NMED SSL are used and accurately cited for the project action levels (PAL) provided on the table. Revise the table accordingly.

**16. Appendix A, Table A-9: Reference Limits and Evaluation Table-Waste Characterization Analyses, Page A-11**

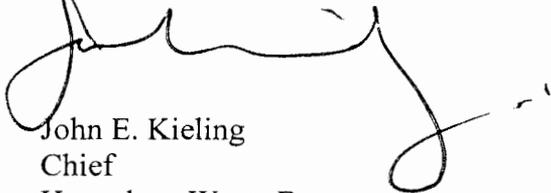
**NMED Comment:** It is unclear where the given regulatory limits listed in Table A-9 for polychlorinated biphenyls are derived. Provide a reference in the table notes that clearly and accurately cite source information for all regulatory limits listed on the table in the revised Work Plan (refer to NMED's RA Guidance).

The Permittee must submit a revised Work Plan 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 Work Plan showing where all changes have been made to the Work Plan. The revised Work Plan must be submitted no later than **May 31, 2019**.

Col. Hammons  
February 18, 2019  
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If you have any questions regarding this letter, please contact Gabriel Acevedo at (505) 476-6043.

Sincerely,



John E. Kieling  
Chief  
Hazardous Waste Bureau

cc: D. Cobrain, NMED  
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