



State of New Mexico   
**ENVIRONMENT DEPARTMENT**

**Hazardous Waste Bureau**

2905 Rodeo Park Drive East, Building 1  
Santa Fe, New Mexico 87505-6313  
Phone (505) 476-6000 Fax (505) 476-6030  
[www.env.nm.gov](http://www.env.nm.gov)



**SUSANA MARTINEZ**  
Governor  
**JOHN A. SANCHEZ**  
Lieutenant Governor

**BUTCH TONGATE**  
Cabinet Secretary  
**J. C. BORREGO**  
Deputy Secretary

**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

January 18, 2018

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 AT SS507  
CANNON AIR FORCE BASE, NEW MEXICO  
EPA ID #NM7572124454  
HWB-CAFB-17-001**

Dear Col. Hammons:

The New Mexico Environment Department (NMED) is in receipt of the Cannon Air Force Base (Permittee) *RCRA Facility Investigation [RFI] at SS507* (Report), dated December 21, 2016 and received January 4, 2017. NMED has reviewed the Report and hereby issues this Disapproval. The following comments must be addressed.

**GENERAL COMMENTS**

**1. Use of NMED's Updated 2017 Soil Screening Levels (SSLs)**

**NMED Comment:** NMED has noted that SSLs included in NMED's 2015 Risk Assessment Guidance for Site Investigations and Remediation (RA Guidance) were used during evaluation of constituents of potential concern in the human health risk assessment evaluation at the Petroleum, Oil, and Lubricants (POL) Yard Refueling Area Site (SS507). However, there have been significant changes to toxicity data for chemicals of concern (COC's) such as polycyclic aromatic hydrocarbons (PAHs) since the release of the 2015 RA Guidance. Screening levels which rely on updated toxicity data utilized for the derivation of

SSLs for COCs have been incorporated into NMED's updated 2017 RA Guidance (Table A-1: NMED Soil Screening Levels). The investigation and risk assessment completed at SS507 may be reevaluated using NMED's updated 2017 SSLs in the revised Report.

## 2. Evaluation of the Vapor Intrusion Exposure Pathway

**NMED Comment:** The Permittee has stated in Report Section 3.4, Human Health Screening-Level Evaluation Methodology, that a preliminary human health screening evaluation was conducted by comparing chemical concentrations found at the site with NMED Vapor Intrusion Screening Levels for residential exposure. However, soil-gas sampling data was not collected during any phase of investigation at SS507. Clarify the statement or revise the Report accordingly.

The Permittee has also stated in Report Section 3.4.1, Preliminary Site Conceptual Exposure Models, that inhalation of vapors was not considered to represent a complete exposure pathway because PAHs are not considered volatile. However, COCs detected in site soil samples, which include PAHs such as anthracene, benzo(a)anthracene, fluorene, naphthalene, 2-methylnaphthalene, and phenanthrene, are considered volatile. Additionally, the volatile organic compounds xylene and toluene were detected in site soils and must be considered during evaluation of the vapor intrusion exposure pathway.

NMED RA Guidance Section 2.5.2.1, Incomplete Pathway; No Action Required, allows for the vapor intrusion pathway to be considered incomplete only if volatile COCs are 100% non-detect in samples collected during site investigation. Based on the results of the investigation of COC soil impacts at site SS507, the vapor intrusion exposure pathway must be evaluated in the revised Report in accordance with RA Guidance, Section 2.5.2, Evaluation of the Vapor Intrusion Pathway. Sample chemical analysis of soil samples collected from the site indicates that the vapor intrusion exposure pathway is potentially complete and must be evaluated in the revised Report in accordance with RA Guidance Section 2.5.2.2, Potentially Complete Pathway; Qualitative Discussion. If any of the criteria outlined in RA Guidance Section 2.5.2.2 have not been met, a quantitative evaluation of the vapor intrusion exposure pathway must be completed at SS507 in accordance with RA Guidance Section 2.5.2.3, Complete Pathway; Quantitative Assessment.

## SPECIFIC COMMENTS

### 3. Section 3.1, RFI Objective, Page 3-1

**Permittee Statement:** "Soil sample locations, site specific soil sample locations, and soil sample analytical parameters were presented in the Work Plan for 12 Sites RFI [July 2015 *Work Plan RCRA Facility Investigation at Twelve Sites*] at. The work plan was reviewed and approved by NMED on January 25, 2016."

**NMED Comment:** A discrepancy was noted in the approval date of the Work Plan for the RFI. NMED approved the *RCRA Facility Investigation at Twelve Sites Work Plan, Revision*

1 with modifications on December 30, 2015. Correct the discrepancy and revise the statement.

#### **4. Section 5.4.5, Refined Quantitative Risk Screening Evaluation for Soil, Page 5-5**

**NMED Comment:** The 95% upper confidence limits (UCLs) for the 0 to 1-foot below ground surface (bgs) exposure interval listed in Section 5.4.5 for most of the listed 95% UCL values do not match the UCL values documented in Report Appendix E, Human Health Risk Assessment, Attachment 1-ProUCLs. Provide additional information in Section 5.4.5, that clarifies the source of the alternate UCL values. Additionally, provide all UCL calculation information not previously included in Appendix E of the Report in the revised Report.

#### **5. Appendix E, Human Health Risk Assessment**

**NMED Comment:** A refined human health risk screen evaluation was conducted using calculated UCL values as human health exposure point concentrations (EPC). However, in many cases, the UCL values utilized in the actual refined risk screen evaluation calculations for the residential, construction worker, and commercial/industrial exposure scenarios (Appendix E, Tables E-9 through E-11) did not correspond to the UCL values documented in Appendix E of the Report. As an example, the 95% UCL value for 2-methylnaphthalene utilized for the risk calculation in Table E-9, Human Health Quantitative Screening Evaluation Results for SS507 Residential Scenario-95% UCL (8.11E-03 milligrams per kilogram (mg/kg)) does not correspond to any of the ProUCL "Suggested UCL to Use" 95% UCL data output values for the 0 to 10-foot bgs exposure interval. In the revised Report, include a discussion that clarifies the rationale used to select the UCLs utilized as human health EPCs for each receptor. Include any omitted UCL calculation information in Appendix E of the revised Report and clearly cite the information as necessary in all applicable sections of the revised Report.

#### **6. Appendix F, Ecological Risk Assessment**

**NMED Comment:** A refined risk assessment was conducted using 95% UCLs as the ecological EPC. Review of chosen EPC values as documented in Table F-3, Exposure Point Concentrations for Surface Soils (0-5 FT) and Table F-4, Exposure Point Concentrations for Surface and Subsurface Soils (0-10 FT) indicates that in various cases, the UCLs listed in the tables do not correspond to the given ProUCL "Suggested UCL to Use" values as documented in Appendix F of the Report. As an example, the 95% UCL for benzo(a)pyrene of 0.354 mg/kg (95% KM Chebyshev UCL) listed in Table F-3 was chosen as the ecological EPC, rather than the suggested ProUCL value of 0.48 mg/kg (97.5% KM Chebyshev UCL). In the revised Report, include a discussion which clarifies the rationale used to select the UCLs utilized as ecological EPCs for each receptor. Include any omitted UCL calculation information in Appendix F of the revised Report and clearly cite the information as necessary in all applicable sections of the revised Report.

**7. Table F-1, Comparison of NMED's Ecological Screening Levels with Project Action Limits and Background Upper Tolerance Limits**

**NMED Comment:** The following discrepancies were noted in Table F-1, which in various cases, have been carried over to the Tier 1 ecological risk calculations documented in Table F-2, Comparison of Maximum Detected Concentrations with Ecological Screening Values and Inorganic Upper Tolerance Limits. The discrepancies must be corrected in the revised Report as follows:

- a. The ecological screening level (ESL) for acenaphthene cited for the deer mouse (632 mg/kg) is incorrect. The correct NMED ESL is 636 mg/kg.
- b. The ESL for fluoranthene cited for the deer mouse (125 mg/kg) is incorrect. The Permittee appears to have listed the value for the Tier 2 toxicity reference value (TRV) for lowest-observed-adverse-effects level (LOAEL). The correct Tier 1 deer mouse ESL for fluoranthene is 114 mg/kg.
- c. The ESL for fluorene cited for the deer mouse (250 mg/kg) is incorrect. The Permittee appears to have listed the value for the Tier 2 TRV for LOAEL. The correct Tier 1 deer mouse ESL for fluorene is 1,140 mg/kg.
- d. The plant ESL for dibenzofuran (2.17 mg/kg) is incorrect. The correct plant ESL is the Tier 1 Effects Concentration for no observed adverse effects level value of 6.17 mg/kg.
- e. The ESL table entry for dibenzofuran for the deer mouse was left blank. Revise the table to include a note clarifying that a NMED ESL for dibenzofuran is not available for the receptor.
- f. The table entry for the plant ESL for silver was left blank. For completeness, include the ESL for silver (560 mg/kg) in the revised table.
- g. Include a table note which defines the "NA" designation utilized throughout Table F-1.

Revise all affected Report tables and conclusions affected by the identified discrepancies in the revised Report.

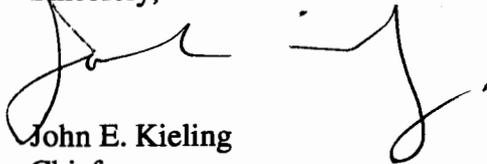
**8. Table F-2, Comparison of Maximum Detected Concentrations with Ecological Screening Values and Inorganic Upper Tolerance Limits**

**NMED Comment:** Apparent calculation errors were noted for the screening level hazard quotients (SLHQ) for plants. These errors were noted for acenaphthene, anthracene, benzo(a)anthracene, and benzo(b)fluoranthene. Review all supporting data and calculation result information and correct the reported SLHQ results 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 where all changes have been made to the Report. The revised Report must be submitted on or before **August 31, 2018**.

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  
B. Wear, NMED HWB  
G. Acevedo, NMED HWB  
L. King, EPA Region 6 (6MM-RC)  
A. Lafuente, CAFB  
R. Lancaster, CAFB  
S. Kottkamp, CAFB  
S. Palmer, CAFB  
D. Gentry, CAFB

File: CAFB 2018 and Reading, CAFB-17-009