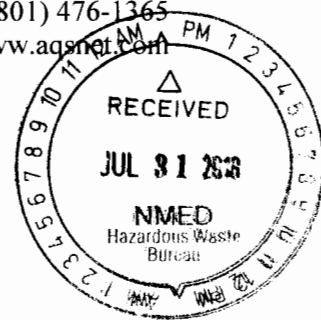




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July 24, 2018

DCN: NMED-2018-10

Mr. David Cobrain
New Mexico Environment Department (NMED)
Hazardous Waste Bureau
2905 Rodeo Park Dr. E/Bldg 1
Santa Fe, NM 87505

RE: Draft Technical Review of the Responses to Comments on the *RCRA Facility Investigation at SS507 - Revision 1*, Cannon Air Force Base, New Mexico, dated April 2018.

Dear Mr. Cobrain:

Attached please find draft technical review evaluations of the facility responses to comments on the *RCRA Facility Investigation at SS507 - Revision 1*, Cannon Air Force Base (CAFB), New Mexico dated April 2018 (Revised RFI). The Revised RFI includes a Response to Comments matrix and the text has been modified to reflect those responses.

The attached deliverable is divided into two parts. Part I evaluates how effectively the information provided in the Revised RFI addresses NMED's original technical review comments. Part II of the deliverable presents three technical review comments on the information contained in the text of Revised RFI and the screening risk evaluation tables contained in Appendices E and F.

The issues raised in NMED comments 1,3, and 5 through 7 have been adequately addressed by the facility responses and changes reflected in the Revised RFI. Additional information is needed from CAFB; however, to better address vapor intrusion at SS507 (NMED comment 2) and fix errors noted in the text (NMED Comment 4) and tables (NMED comment 8).

Part II presents new issues identified as a result of the revisions to the risk-based screening evaluations in the Revised RFI. Note that none of the identified errors requires recalculation of cancer risks or hazard to any receptors and/or reconsideration of the conclusions and recommendations in the Revised RFI.

If you have any questions, please contact me at (801) 451-2864 or via email at pwalton@aqsnnet.com.

Thank you,

Paige Walton
AQS Senior Scientist and Program Manager

cc: Gabriel Acevedo, NMED (electronic)
Mike Smith, AQS (electronic)
Joel Workman, AQS (electronic)

Enclosure

Draft Deliverable: not a final work product

correct ProUCL files have been incorporated into Appendix E of the Revised RFI. Additionally, most of the 95% upper confidence limits (UCLs) for the 0 to 1 foot below ground surface (ft bgs) agree with the values listed in ProUCL output files incorporated into the Revised RFI. However, the value for chrysene is listed in Section 5.4.5 as 6.68E-01 milligrams per kilogram (mg/kg). According to the ProUCL output files, the value should be 6.88E-01 mg/kg. The correct value, 6.88E-01 mg/kg, was used in Table E-11 (Human Health Quantitative Screening Evaluation Results for SS507 Commercial/Industrial Worker Scenario – 95% UCL) to calculate refined risk for commercial/industrial workers. Revise the 0 to 1 ft bgs 95% UCL listed for chrysene in Section 5.4.5 to 6.88E-01.

Evaluation of Facility Response to NMED Comment 5: The facility response adequately addresses the issue raised in the original comment. The refined human health screening evaluation presented in Tables E-9 through E-11 of Appendix E reflects the screening values in the 2017 RA Guidance. In addition, all UCLs not recommended by ProUCL have been removed from the refined evaluation; the refined human health screen uses ProUCL recommended values for each constituent of potential concern addressed in the analysis. Finally, the correct ProUCL files have been incorporated into Appendix E of the Revised RFI.

Evaluation of Facility Response to NMED Comment 6: The facility response adequately addresses the issues raised in the original comment. The revision to Section 5.5.2.1, Tier 2 Exposure Assessment, of the Revised RFI presented in the first paragraph of the response has been incorporated into the text. In addition, the uncertainty associated with CAFB's approach is discussed in Section 5.5.2.4, Uncertainties Associated with screening level ecological risk assessment (SLERA) Results. Footnotes have also been added to Tables F-3 and F-4 as noted in the second paragraph of the facility response.

Evaluation of Facility Response to NMED Comment 7: The facility response adequately addresses the issues raised in the original comment. The seven errors and issues identified in the original comment have been corrected and addressed in the revision of Table F-1, Comparison of NMED's Ecological Screening Levels with Project Action Limits and Background Upper Tolerance Limits.

Evaluation of Facility Response to NMED Comment 8: The facility response partially addresses the issue raised in the original comment. Maximum concentrations were verified for all analytes listed in Table F-2, Comparison of Maximum Detected Concentrations with Ecological Screening Values and Inorganic Upper Tolerance Limits, except Phenanthrene. Ecological screening values (ESLs) were also verified against the values listed in Table F-1 and Table C-2 of the 2017 *Risk Assessment Guidelines for Site Investigations and Remediation, Volume II* (2017 NMED RA Guidance, Volume II). The following issues/concerns were identified as a result of that review:

- Table F-2 lists the maximum concentration for phenanthrene as 0.51 milligrams per kilogram (mg/kg). However, the EXCEL[®] file entitled *1. SS507 Analytical Data* lists the maximum concentration as 0.31 mg/kg. This discrepancy impacts the calculation of the hazard quotient (HQ) for the Deer Mouse. Review the maximum concentration data for phenanthrene and update the Deer Mouse screening level hazard quotient (SLHQ) if necessary based on the review.

- The Plant ESLs listed for High Molecular Weight PAHs benzo(a)anthracene, benzo(b)fluoranthene, and chrysene do not match the values listed in Table F-1, Comparison of NMED’s Ecological Screening Levels with Project Action Limits and Background Upper Tolerance Limits. They do; however, agree with the values listed in Table C-2 of the 2017 NMED RA Guidance, Volume II. Review the Plant ESL values for High Molecular Weight PAHs and ensure that Tables F-1 and F-2 reflect the values listed in Table C-2 of the 2017 NMED RA Guidance, Volume II.
- Table C-2 of the 2017 NMED RA Guidance, Volume II lists the Horned Lark ESL for PCB-1260 as 10.2 mg/kg. Table F-2 lists a value of 102 mg/kg and uses this incorrect value to calculate the Horned Lark SLHQ for PCB-1260. Revise the table to ensure the Horned Lark ESL listed in Table C-2 for PCB-1260 is used in calculating the Horned Lark SLHQ.
- The Plant ESL for PCB-1260 in Table F-2 is for PCB-1254. No Plant ESL is listed for PCB-1260 in Table C-2 of the 2017 NMED RA Guidance, Volume II. Ensure that “NA” is entered into Table F-2 as the Plant ESL for PCB-1260 and update the Plant SLHQ accordingly.

As part of the response to these discrepancies, ensure that all impacted text sections and tables in the Revised RFI are revised to reflect accurate and consistent information.

II. TECHNICAL REVIEW COMMENTS ON THE REVISED SCREENING LEVEL RISK ASSESSMENT BASED ON THE 2017 NMED RAG

1. Based on errors identified in Tables E-6 and E-10 of Appendix E, the excess cancer risks for construction workers presented on page 5-17 of Section 5.6, Site Conceptual Model, should be revised. In the fourth paragraph on page 5-17, the risk for construction workers should be changed from 8E-07 to 1E-06. In the fifth paragraph, the construction worker risk should read 5E-08 instead of 4E-08.
2. The tables included in Appendix E of the Revised RFI were reviewed to ensure that information from the 2017 RA Guidance was properly incorporated into risk analysis and verify all calculations. The following issues and concerns were identified during the review:
 - Table E-4, Comparison of Maximum Detected Concentrations at SS507 to Screening Criteria – 0 to 1-Foot Exposure Interval, lists an “N” in the column entitled Exceeds Screening Value (Y/N) for indeno(1,2,3-c,d)pyrene. The maximum soil concentration for indeno(1,2,3-c,d)pyrene, 1.6 mg/kg, exceeds its residential screening value, 1.53 mg/kg. Thus, a “Y” should be listed rather than an “N”. Revise Table E-4 to indicate that Indeno(1,2,3-cd)pyrene exceeds its residential screening value. No other changes to the Revised RFI are necessary as indeno(1,2,3-cd)pyrene was appropriately retained and evaluated in the revised screening level risk analysis.
 - A programming error was made in calculating the total estimated cancer risk in Table E-6, Human Health Quantitative Screening Evaluation Results for SS507 Construction Worker Scenario. The error prevents the estimated risk for PCB-1260, 5.28E-07, from being included in the calculation of total cancer risk. The total estimated cancer risk for

Table E-6 should be 1E-06. The Cumulative Site-Specific Screening Excess Cancer Risk for the Construction Worker in the in-text table entitled Former POL Yard Refueling Area Site (SS507) Screening-Level Cumulative Risks and Hazard Indices for Soil (Page 5-3, Section 5.4.2) should also be changed from 8E-07 to 1E-06.

- A programming error was made in calculating the total estimated cancer risk in Table E-9, Human Health Quantitative Screening Evaluation Results for SS507 Residential Scenario – 95% UCL. The error prevents the estimated risk for PCB-1260, 4.40E-07, from being included in the calculation of total cancer risk. However, the total estimated risk for Table E-9 (to one significant figure) should remain be 6E-06.
 - A programming error was made in calculating the total estimated cancer risk in Table E-10, Human Health Quantitative Screening Evaluation Results for SS507 Construction Worker Scenario – 95% UCL. The error prevents the estimated risk for PCB-1260, 1.25E-08, from being included in the calculation of total cancer risk. The total estimated cancer risk for Table E-10 should be 5E-08. The Cumulative Site-Specific Screening Excess Cancer Risk for the Construction Worker in the in-text table entitled Former POL Yard Refueling Area Site (SS507) Refined Screening-Level Cumulative Risks and Hazard Indices for Soil (Page 5-6, Section 5.4.5) should also be changed from 4E-08 to 5E-08.
3. Table F-9, Summary of Tier 2 Hazard Quotients for the Plant Community, Horned Lark, and Deer Mouse, lists a LOAEL TRV of 3.7 milligrams per kilogram-day [mg/(kg·day)] for Lead. However, Table C-2, Tier 1 TRVs and ESLs and Tier 2 TRVs for the Deer Mouse, of the 2017 RA Guidance, Volume II specifies a LOAEL TRV of 8.9 mg/(kg·day) for Lead. Revise Table F-9 to list a LOAEL TRV of 8.9 mg/(kg·day) for lead. In addition, change the SLHQ for lead from 0.07 to 0.03. No changes to the text of the Revised RFI are required.

**DRAFT TECHNICAL REVIEW OF THE
RESPONSES TO COMMENTS ON THE
RCRA FACILITY INVESTIGATION AT SS507 - REVISION 1
CANNON AIR FORCE BASE, NEW MEXICO
APRIL 2018**

I. EVALUATION OF FACILITY RESPONSE TO ORIGINAL TECHNICAL REVIEW COMMENTS

Evaluation of Facility Response to NMED Comment 1: The facility response adequately addresses the issue raised in the original comment. The risks and hazards presented in the *RCRA Facility Investigation at SS507 - Revision 1* (Revised RFI) have been updated to reflect the use of the 2017 *Risk Assessment Guidelines for Site Investigations and Remediation, Volume I* (2017 RA Guidance).

Evaluation of Facility Response to NMED Comment 2: The facility response partially addresses the issue raised in the original comment. Cannon Air Force Base (CAFB) has removed the statement related to screening against vapor intrusion screening levels (VISLs) from Section 3.4. The statement regarding the inhalation of vapors has also been struck from Section 3.4.1. CAFB has also provided a qualitative evaluation of the vapor intrusion pathway at SS507 in Section 5.4.6, Qualitative Evaluation of Vapor Intrusion. Section 5.4.6 provides some useful lines of evidence in accordance with Section 2.5.2.2, Potentially Complete Pathway; Qualitative Discussion. However, Section 5.4.6 does not address all the issues raised in NMED's original comment or provide lines of evidence that effectively address all the criteria listed in Section 2.5.2.2 of the 2017 RA Guidance. NMED's original comment noted that anthracene, benzo(a)anthracene, fluorene, naphthalene, 2-methylnaphthalene, and phenanthrene are considered volatile and were detected at SS507. Section 5.4.6 addresses only m,p-xylene, o-xylene, and naphthalene. In addition, Section 5.4.6 does not address the screening of detected volatile compounds against soil gas or groundwater VISLs. While Section 5.4.6 indicates that most above-ground structures have been removed from SS507, the text does not identify any controls that will prevent construction of buildings in the future. Revise Section 5.4.6 to address volatile polycyclic aromatic hydrocarbons (PAHs) detected at the site like anthracene, benzo(a)anthracene, and phenanthrene. In addition, ensure Section 5.4.6 demonstrates that soil gas or groundwater concentrations are below applicable VISLs or demonstrates that screening against VISLs is not necessary due to the characteristics of the site. Finally, identify any controls in place to ensure buildings will not be constructed at SS507 in the future.

Evaluation of Facility Response to NMED Comment 3: The facility response adequately addresses the issue raised in the original comment. CAFB has revised the text of Section 3.1 to indicate the correct approval date for the RCRA Facility Investigation at Twelve Sites Work Plan, Revision 1.

Evaluation of Facility Response to NMED Comment 4: The facility response partially addresses the issue raised in the original comment. The refined risk evaluation for the commercial/industrial worker reflects the screening values in the 2017 RA Guidance and the