



Michelle Lujan Grisham
Governor

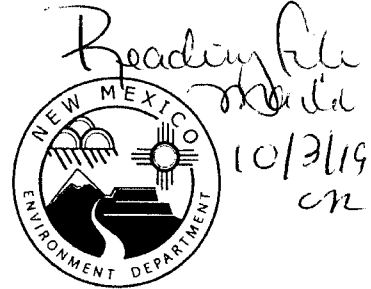
Howie C. Morales
Lt. Governor

NEW MEXICO ENVIRONMENT DEPARTMENT ENTERED

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CERTIFIED MAIL - RETURN RECEIPT REQUESTED



James C. Kenney
Cabinet Secretary

Jennifer J. Pruett
Deputy Secretary

October 3, 2019

Brian D. Knight, Chief
Environmental Division (Building 163)
U.S. Army White Sands Missile Range
White Sands Missile Range, NM 88002-5000

**RE: DISAPPROVAL
SITE-SPECIFIC BACKGROUND STUDY REPORT SWMUS 92 A/B THROUGH 100 LIQUID
PROPELLANT EVAPORATION/NEUTRALIZATION PITS
WHITE SANDS MISSILE RANGE, NEW MEXICO
EPA ID #NM 2750211235
HWB-WSMR-19-003**

Dear Mr. Knight:

The New Mexico Environment Department (NMED) has reviewed the U.S. Army White Sands Missile Range (Permittee) *Site-Specific Background Study Report SWMUs 92 A/B through 100 Liquid Propellant Evaporation/Neutralization Pits* (Report), dated April 2019. NMED hereby issues this Disapproval. The Permittee must address the following comments.

Comment 1

In Section 4.4 (Outlier Testing) the Permittee states, “[t]he Grubb’s outlier test was performed for all 30 subsurface soil concentrations combined and for all 10 surface soil concentrations for each metal with at least 2 detects at the 0.05 significance level.” The Grubb’s test for outliers is intended to identify outliers in a normally distributed data set. Use of the test on non-normally distributed data can give false results. According to Table 3 (WSMR Subsurface Soil Summary Statistics and BTVs) selenium is the only metal in the data set with a normal distribution. It is not clear why the Grubb’s test for outliers was used rather than other statistical tests (e.g., Dixon’s test or Rosner’s test which are both available in ProUCL). Revise the Report to discuss why the Grubb’s test for outliers was used to identify outliers in the data set or re-evaluate the data using an applicable alternate test.

Comment 2

The Permittee must revise Section 5.2 (Outlier Testing) to provide the calculation of the Grubb's test statistics and how the determination of the critical value for the test were made. Without this information the results of the analysis cannot be verified. If the analysis was performed using a software package, then the Permittee must identify the software and provide the input and output files (see Comment 1).

Comment 3

In Section 5.2 (Outlier Testing) the Permittee states that Appendix D and Figures D.1 through D.23 were used to identify outliers; however, neither the text in the appendix nor the main text interpret the results of the graphical analysis. Revise the Report to discuss and summarize the information provided by the graphs regarding the data distribution and the identification of outliers (see Comment 1).

Comment 4

In Sections 5.2 (Outlier Testing) and 5.3 (Summary) the Permittee states that outliers were not removed from the background data sets. This means that the currently proposed background threshold values (BTVs) are based on all background data, including identified outliers. The Environmental Protection Agency (EPA) guidance *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites dated September 2002 Background document, ProUCL Version 5.1 Technical Guide dated October 2015* suggests running the BTV analysis both with and without outliers to understand the influence of the outliers on the BTVs. Section 5.2 does not discuss this approach. Revise the Report to discuss whether the ProUCL BTVs analysis included any analysis without the outliers and whether it would affect the proposed BTVs.

Comment 5

In Section 5.1 (Summary Statistics, Distribution, and BTVs), page 5-1, the Permittee refers to Appendix D for the ProUCL output files for the upper tolerance limits (UTLs) in surface soil, subsurface soil, and combined surface and subsurface soil. The UTLs listed as BTVs in Tables 2, 3, and 4 are provided in milligrams per kilogram (mg/kg); however, the data presented in Section 5.1 and the ProUCL files do not include units for the UTL values listed in the files. The values listed in Tables 2 through 4 are clearly different than those listed in Appendix D. The text in Section 5.1 must be revised to indicate the UTL values listed in the ProUCL output files in Appendix D are in micrograms per kilogram (ug/kg) to avoid confusion.

Comment 7

Appendix D-2 presents the ProUCL output files that list calculated and recommended UTLs for background metals, the input data used by ProUCL in performing the calculations is not provided. It is especially important to include the input data in this case because of the uncertainties introduced into the analysis with the inclusion of potential outliers and the handling of duplicate sampling results where one result is non-detect. The Permittee must

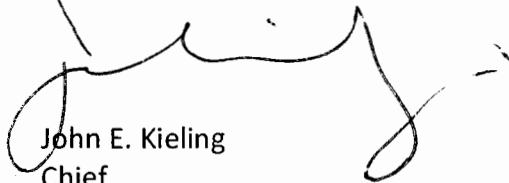
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revise Appendix D-2 to include the input data set for each ProUCL output file included in the appendix.

The Permittee must address all comments in this Disapproval and submit a revised Report. The submittal must include a red-line strikeout version in electronic format showing where all revisions have been made to the Report. The revised Report must be accompanied with a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. The revised Report must be submitted to NMED no later than **January 3, 2020**.

If you have any questions regarding this Disapproval, please contact Kristen Van Horn at (505) 476-6046.

Sincerely,

A handwritten signature in black ink, appearing to read "John E. Kieling". The signature is fluid and cursive, with a large initial "J" and "K".

John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
K. Van Horn, NMED HWB
B. Avalos, WSMR
L. King, EPA

File: WSMR 2019 and Reading
WSMR-19-003