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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 26, 2014

Radel Bunker-Farrah
Chief, Environmental Officer
National Aeronautics and Space Administration
White Sands Test Facility
P.O. Box 20
Las Cruces, NM 88004-0020

Attention of: RE-14-036

**RE: NOTICE OF DISAPPROVAL
SOIL BACKGROUND STUDY INVESTIGATION REPORT
NATIONAL AERONAUTICS SPACE ADMINISTRATION (NASA)
JOHNSON SPACE CENTER (JSC) WHITE SANDS TEST FACILITY (WSTF)
DOÑA ANA COUNTY, NEW MEXICO
EPA ID #NM08800019434
HWB-NASA-14-002**

Dear Ms. Bunker-Farrah:

The New Mexico Environment Department (NMED) has received the NASA WSTF's (Permittee's) Soil Background Study Investigation Report (Report), dated March, 2014 and received March 31. NMED has completed its review of the Report and hereby issues this Notice of Disapproval. NMED's comments on the Report are as follows.

Comments

Overall, there is a major concern that the statistics provide over-estimations of the background data and as ProUCL or another commercial software program was not used, the results cannot be reviewed to see what specific evaluations and decisions were made.

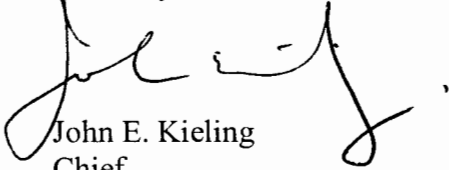
1. The statistical estimates of the upper tolerance limits (UTLs) for the background data were not determined using ProUCL or other commercial software but rather a proprietary code. While it is noted that the statistician followed the ProUCL guidance, an independent look at the outputs and verification of results could not be conducted.
2. There is a general concern that practically 100% of the UTLs are greater than the maximum detected background concentrations for all the background units. While it is anticipated that UTLs could be greater than the maximum detected, it is not typical to see 100% of the UTLs greater than background with many of them being two to three times greater than the maximum detected concentration. It appears that there is an unaccounted bias in the data, possibly the inclusion of outliers or highly skewed data. Inclusion of an outlier would result in a high UTL. Discussion of whether outliers were evaluated and excluded is warranted as well as a discussion as to why all the UTLs are high (and in many cases two to three times higher and a few greater than three times higher) compared to the maximum detected concentration.
3. For the statistical calculations of the UTLs, it appears the data were “forced” into one of four distribution types: normal, lognormal, gamma, or exponential. It is not clear why the data distributions were limited to only these four types, rather than allowing the program (or ProUCL) to determine the best-fit distribution. Further, it appears that even if the p-values were greater than 10%, when nonparametric distributions may be applied, the data were still forced into one of the four distributions. Discuss how outliers also affect the chosen distribution, as it does not appear that any tests were conducted for outliers or any data excluded as an outlier. Provide discussion of this issue.
4. Similar to above, it appears that if none of the four distributions fit, an upper prediction level (UPL) was calculated and used as the UTL. The prediction level is an estimate of what a future value will be while the tolerance limit is representative of a population characteristic. Typically the UPL is used to compare data to background (such as compliance monitoring) and not to establish a soil background range. Justify why the UPL is an adequate substitution for a UTL, and why the UPL is more appropriate than using non-parametric or other statistical methods for estimating the UTL. Also, it is not clear from the summary tables if the result is a UPL or a UTL. Provide discussion of this issue.

The Permittee must address all comments in a response letter no later than **September 1, 2014**. Based on the response, NMED will determine whether a revised Background Study Investigation Report is necessary.

Ms. Bunker-Farrah
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If you have any questions regarding this letter, please contact Daniel Comeau at (505) 476-6043.

Sincerely,



John E. Kieling
Chief
Hazardous Waste Bureau

cc: N. Dhawan, NMED HWB
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