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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 14, 2012

A. David Budak
Deputy Base Civil Engineer
550 Tabosa Avenue
Holloman AFB, NM 88330-5840

**RE: DISAPPROVAL
RCRA FACILITY INVESTIGATION REPORT, BUILDING 131 WASHRACK,
SITE SD-08
HOLLOMAN AIR FORCE BASE, EPA ID # NM6572124422
HWB-HAFB-07-007**

Dear Mr. Budak:

The New Mexico Environment Department (NMED) has reviewed Holloman Air Force Base's (the Permittee's) RCRA Facility Investigation (RFI) Report for Site SD-08 (SWMU 82) dated July 2007 and received on August 1, 2007. Upon review, NMED has identified the following deficiencies that must be addressed:

1. **Page 2-5, Section 2.3.4 and Appendix A-5**

This Section refers to a Decision Document that appears in Appendix A-5 that authorized the placement of an asphalt cap over the contaminated soils at the site and the installation of a fence to restrict access to the site as a preferred remedial action. This Decision Document was signed by the Secretary of the NMED on September 29, 1995 and the HAFB Commander on November 3, 1995. The Decision Document required that annual inspection and maintenance of the cap be conducted as well as a requirement for long-term groundwater monitoring (LTM). The Decision Document also required that a review be conducted within five years to ensure that the remedy continues to provide adequate protection to human health and the environment.

NMED acknowledges that LTM activities have commenced at the site, but no evidence has been submitted that shows that the annual inspections were conducted or that any 5-year reviews were conducted. Therefore, the Permittee shall submit an inspection and maintenance plan for the cap for NMED approval that satisfies the requirements of the Decision Document.

The following comments refer to the Risk Based Evaluation presented in Section 8 of the RFI Report.

General Comment

2. Although site concentrations were compared with risk-based target levels in soil and groundwater, incremental risks and hazard indices were not calculated for the receptors that were evaluated in the risk assessment. Incremental risks and hazard indices must be calculated in order to adequately characterize the total risk to receptors that may be present at the site. Furthermore, risks and hazards from all potentially completed exposure pathways (including soil and groundwater pathways) must be summed for each receptor to characterize cumulative risks and hazards before any conclusion of whether concentrations may be considered protective of future receptors at the site.

The Permittee shall modify the risk assessment to present cumulative risks and hazards including all completed exposure pathways for each receptor.

Specific Comments

3. **Page 8-5, Section 8.3.3.1**

This Section indicates that residential receptors would be exposed to surficial soil. Per NMED's Soil Screening Guidance, residential receptors are expected to be exposed to soil from zero (0) to 10 feet below ground surface (ft bgs). The footnotes of Table 8-4(a) indicate that surface soil is defined as 0 to 2 ft bgs and that subsurface soil is assumed to be between two (2) ft bgs and the groundwater table. Based upon a review of the data provided in Tables 8-2(a) and 8-2(b), it appears that all soil results, including those collected from 10-12 ft bgs, were included in determining the exposure point concentrations (EPCs). In reviewing the data, there is a decreasing trend in concentrations with depth, therefore use of an EPC based on a more "surficial" soil is most likely conservative. However, the exposure depth evaluated for the residential scenario (and for each receptor) should include subsurface soil (to a depth of 10 ft bgs or the water table) and be clearly stated in the text.

The Permittee shall clarify whether all of the data provided in Table 8-2(b) were included in the risk assessment EPC determinations or whether data below 2 ft bgs were eliminated.

4. **Page 8-7, Section 8.4.3.1**

This Section indicates that the toxicity values presented in the Johnson and Ettinger (J&E) model were used to calculate target indoor air concentrations. Utilization of toxicity data contained in the J&E model is not always appropriate as it may not be the most current or may not follow the same hierarchy of sources outlined in NMED's Soil Screening Guidance or per EPA guidance.

The Permittee shall review the toxicity data used in the J&E modeling and discuss whether use of current toxicity data (if there are differences) would result in any change to the risk conclusions and total risk/hazard.

5. **Page 8-9, Section 8.5**

The following text is taken from Section 8.5, "For the chemicals whose maximum detected concentration exceeded the target levels, the average concentrations were compared with the target levels. The average concentrations are more representative of the concentrations. To calculate the average concentrations, the nondetect values were replaced with $\frac{1}{2}$ the detection limits." The following comments apply to this statement:

- a) The use of an arithmetic average is inappropriate for risk assessment and may underestimate potential risks and hazards. Further, it is not clear that use of an average concentration was acceptable practice at the time this report was drafted. US EPA now recommends the use of a 95% upper confidence limit (UCL), which is an estimate of the mean, as a representative exposure point concentration for risk assessments.

The Permittee shall replace the average concentrations with the 95% UCL for the exposure point concentrations and provide a discussion of any change in risk conclusions that may occur.

- b) While, historically, the use of an arithmetic average of detection levels or simple substitution for non-detects with one-half the detection level was common practice, these simple substitution methods are no longer deemed appropriate for risk assessments. Studies have shown the use of these simple substitution methods may underestimate potential risks and hazards. US EPA's ProUCL User's Guide states that, "*It should be noted that for data sets with NDs [non-detects], the DL/2 substitution method has been incorporated in ProUCL 4.0 only for historical reasons and also for its current default use. It is well known that the DL/2 [detection limit] method (with NDs replaced by DL/2) does not perform well (e.g., Singh, Maichle, and Lee (EPA, 2006) even when the percentage of NDs is only 5%-10%. It is strongly suggested to avoid the use of DL/2 method for*

estimation and hypothesis testing approaches used in various environmental applications. Also, when the % of NDs becomes high (e.g., > 40%-50%), it is suggested to avoid the use of parametric MLE methods. For data sets with high percentage of NDs (e.g., > 40%), the distributional assumptions needed to use parametric methods are hard to verify; and those parametric MLE methods may yield unstable results.” Use of simple substitution may also result in an underestimation of the exposure point concentration. In lieu of the proposed methods applied in this report, ProUCL provides several other methods for handling censored data to include regression on order statistics (ROS). As the use of simple substitution tests for censored data are not a currently accepted practice, determination of the EPC for censored data sets should be revised to reflect current guidance.

The Permittee shall modify the risk assessment to utilize alternative methods for calculating UCLs with datasets containing non-detects, such as those recommended by US EPA’s ProUCL User’s Guide.

6. Table 8-4(a)

This Table lists dermal contact with groundwater as an incomplete exposure pathway for the residential receptor. However, the exposure interval for a residential receptor is 0-10 ft bgs. The water table is noted as being as high as 6 ft bgs, meaning that it is plausible that a resident digging in their yard could come into contact with potentially contaminated groundwater and have some dermal and incidental ingestion exposures. However, the risk from these pathways is typically minor and most likely would not contribute significantly to risk.

The Permittee shall classify the “dermal contact with groundwater” pathway as being potentially complete. While inclusion of a quantitative analysis probably will not change the overall risk conclusions, the report should qualitatively address this pathway.

7. Appendix G

The Johnson and Ettinger (J&E) input spreadsheets provided as Appendix G show that soil and groundwater target levels were calculated for both a child resident (which utilized a value of 6 years for the exposure duration and the averaging time for non-carcinogens) and an adult resident (which utilized a value of 24 years for the exposure duration and the averaging time for non-carcinogens). Calculation of both adult and child target levels is not necessary as the algorithms employed by the J&E model do not take into account the body weight of receptors. In addition, a value of 30 years should be used for the residential exposure duration and averaging time for non-carcinogens, which is the residential default value recommended in the User’s Guide to the J&E model. It is noted that the soil and groundwater target levels presented in Tables 8.9(a) and 8.9(b) are

the target levels based on the exposure duration of 24 years. However, the target levels based on the exposure duration of 24 years for several COPCs are less conservative than those that would be calculated by applying the exposure duration of 30 years.

The Permittee shall update the J&E model to use the exposure duration of 30 years for residential receptors.

8. Appendix H

The equation outlined in Appendix H for the estimation of risk-based target levels in outdoor air (RBTL_{oo}) was adapted from US EPA's 1989 *Risk Assessment Guidance for Superfund: Part A*, as noted. This equation estimates intakes (i.e., mg/kg-day) via inhalation through the consideration of body weight and inhalation slope factors or reference doses. The more recent US EPA (1996) *Soil Screening Guidance: User's Guide* does not recommend estimating intakes. Rather, the volatilization factor is applied to inhalation unit risk factors or reference concentrations (adjusted for exposure frequency, duration, and time). As the 1996 guidance was available at the time this report was drafted, the more currently methodology should have been used.

The Permittee shall determine whether the usage of the more current US EPA (1996) Soil Screening Guidance would result in significant changes to the cumulative risk and hazard calculations for the construction worker.

The Permittee must submit a revised RFI Report that corrects the deficiencies noted above by **July 11, 2012**. As part of the response letter that accompanies the revised Report, the Permittee shall include a table that details where all revisions have been made to the Report and that cross-references NMED's numbered comments. All submittals (including figures and tables) must be in the form of two paper copies and one electronic copy (in MS Word™ format). In addition, the Permittees must submit an electronic redline-strikeout version that includes all changes and edits to the Report.

Mr. Budak
May 14, 2012
Page 6 of 6

If you have any questions regarding this matter, please contact David Strasser of my staff at (505) 222-9526.

Sincerely,



John E. Kieling
Chief
Hazardous Waste Bureau

cc: W. Moats, NMED HWB
C. Amindyas, NMED HWB
D. Strasser, NMED HWB
C. Hendrickson, EPA-Region 6 (6PD-N)
File: HAFB 2012 and Reading
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