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September 22, 2010

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

RE: Draft Technical Review of the Revised Corrective Action Complete Proposals, September 22, 2010 for Solid Waste Management Units (SWMUs) 2, 4, 6, 10, 50, 72, 81, 82, 96, 98, 102, 106, and 125, Cannon Air Force Base, New Mexico

Dear Mr. Cobrain:

This letter serves as a deliverable and provides our draft technical evaluation of the revised *Corrective Action Complete Proposals, September 22, 2010 for Solid Waste Management Units (SWMUs) 2, 4, 6, 10, 50, 72, 81, 82, 96, 98, 102, 106, and 125, Cannon Air Force Base, New Mexico.*

Several sets of comments and iterations of this report have been previously submitted and reviewed. As noted in our May 28, 2010 deliverable, responses to Comment Nos. 2, 3, and 5 were not adequately addressed. An evaluation of these three outstanding issues was conducted as part of the review of the September version of the report. The following provides a discussion of outstanding and new issues.

Outstanding Notice of Deficiency Issues

As noted our May 28, 2010 deliverable addressing the response to comments on the technical evaluation of the August 2010 version of the Correction Action Compete Proposal, the responses to three comments were deemed inadequate. Comment No. 2 dealt with the lack of evaluation of small animals with the potential to burrow and be exposed to soils below a depth of 0.6 feet at solid waste management unit (SWMU) 102. The September report was revised to include an ecological risk assessment based upon maximum detected concentrations. No additional comments were generated on this issue and the overall response is adequate.

Comment No. 3 addressed the use of toxicity data from 2006 instead of more current data reflected in the 2009 soil screening level (SSL) tables. The September report was revised to incorporate the more recent 2009 SSLs. No additional comments were generated on this issue and the overall response is adequate.

Comment No. 5 concerned how soil-to-groundwater SSLs and dilution attenuation factors (DAFs) are applied. The facility applied a two-fold approach to this concern. An initial evaluation was conducted comparing the maximum site concentration to SSLs based upon a DAF of one (1). A second tier was then applied where a site-specific DAF was calculated using the methodology in the NMED Technical Background Document for Development of Soil Screening Levels (SSG), December 2009. The text is slightly misleading, in that site-specific DAFs were not calculated for each SWMU, but rather the worst-case DAF was calculated and applied to each SWMU. This is a conservative approach, and thus deemed adequate. No additional comments were noted on this issue.

New Notice of Deficiency Issues

The following comments are new comments based upon the review of revised and/or newly added text.

Comment No. 1: Risks and hazards from vapor intrusion could not be duplicated using either the 2004 screening or advanced versions of the Johnson and Ettinger (J&E) model for bulk soil (http://www.epa.gov/oswer/riskassessment/airmodel/johnson_ettinger.htm). A range of the general defaults along with a soil type of 'sand' as specified in the text were applied. The estimated risks and hazards appear to be consistently two to three orders of magnitude higher than those provided in Tables 3, 6, 7, 8, 9, 13, 14, 16, and, 17. Revise the report to include all modeling spreadsheets used to calculate the risks and hazards (every tab in the spreadsheet including 'DATAENTER', 'CHEMPROPS', 'INTERCALCS', 'RESULTS', and 'VLOOKUP'). In addition, it is not clear that some of the issues may be related to improper units [soil concentrations (µg/kg)] and/or appropriate risk levels (1E-05)].

Comment No. 2: The toxicity data applied in the J&E model are outdated and may not have been selected following the most current hierarchy of toxicological sources (refer to the NMED SSG, December 2009). For example, the J&E modeling includes toxicity data for trichloroethylene taken from the 2002 Draft Vapor Intrusion Guidance, which were based on provisional National Center for Environmental Assessment (NCEA) data. NCEA data were not subject to peer review, and as such, have been dropped from the hierarchy of acceptable toxicity sources by the Environmental Protection Agency (EPA, http://www.epa.gov/oswer/riskassessment/pdf/hhmemo.pdf). Several changes to toxicity data for most of the constituents included in the J&E modeling have occurred. The J&E modeling should only be used to estimate concentrations in the air. All risk/hazard estimates should then be calculated using the most currently toxicity data available. Revise accordingly and ensure that current toxicological data are applied.

Comment No. 3: In Tables 6, 7, 13, and 14, the carcinogenic risk calculations (under the column entitled "Cumulative Risk Calculations") for each individual chemical were not determined correctly, as the data were not multiplied by the target risk level of 1E-05. Revise accordingly.

Comment No. 4: Overall, total (cumulative) risks and hazards were not determined correctly for these sites. In some cases, a comparison to the SSLs was conducted, but risks/hazards were not determined. In other cases, risks/hazards were determined from comparison to SSLs, but the

risks/hazards were not combined with those estimated for the indoor air exposure pathway. Following the methodology outlined in the 2009 NMED SSG, when there are multiple chemicals, total risk/hazard must be calculated and compared to the appropriate target risk/hazard level. This total risk must include all chemicals and all exposure pathways. Revise accordingly.

Comment No. 5: Tables 6 and 14 provide a comparison of site maximum concentrations to ecological screening levels; however, neither individual hazard quotients nor an overall hazard index is provided to demonstrate that the site does not pose ecological risk. Revise the tables accordingly.

Comment No. 6: Table 15 presents individual hazard quotients for ecological receptors; however, hazard indices are not provided for each receptor. Conservatively, total risk must account for the cumulative effect from all chemicals unless hazard indices based upon target organ analyses are provided. Revise accordingly.

If you or any of your staff have questions, please contact me at (801) 451-2864 or via email at paigewalton@msn.com.

Thank you,

Paige Walton

Paige Walton
AQS Senior Scientist and Program Manager

cc: Neelam Dhawan, NMED (electronic)
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