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July 16, 2010

DCN: NMED-2010-21

Mr. David Cobrain
NMED - Hazardous Waste Bureau
2905 Rodeo Park Dr. East
Building One
Santa Fe, NM 87505

RE: Draft Technical Review Comments on the Corrective Action Complete Proposals (SWMUs 2, 4, 6, 10, 50, 72, 75, 81, 82, 96, 98, 102, 106, and 125) Cannon Air Force Base New Mexico, June 2010

Dear Mr. Cobrain:

This letter serves as a deliverable and addresses the "Corrective Action Complete Proposals (SWMUs 2, 4, 6, 10, 50, 72, 75, 81, 82, 96, 98, 102, 106, and 125) Cannon Air Force Base New Mexico," June 2010. Per email request by Ms. Patricia Stewart (dated July 1 and July 16, 2010), a review of the text and tables for Solid Waste Management Unit (SWMU) 81 (page 13 and Table 7) and SWMU 102 (pages 20-22 and Table 14) was requested to determine if the risks were adequately identified.

The determination of whether nature and extent of contamination has been adequately defined for both the horizontal and vertical extent is not discussed with any level of detail in this report. It is assumed that NMED has previously agreed that nature and extent has been defined in the Resource Conservation and Recovery Act Facility Investigation (RFI) reports.

Overall, the tabulated data (Tables 6, 7, and 14) were poorly documented and had multiple minor issues. None of these issues appear to impact the overall conclusion of the report as documented. The following comments were noted with this risk review.

General Comment

1. As noted in Section C of the Introduction, all human health risk evaluations were based upon a comparison to the 2006 New Mexico Soil Screening Levels (SSLs). As several of the evaluations of data and comparison to SSLs appear to have been conducted more recently, the most recent SSLs should have been used. For purposes of reviewing the data and resulting conclusions on risk for SWMUs 81 and 102, the December 2009 SSLs were applied. It is noted that while there are several differences in SSLs between those listed from

2006 and the current 2009 SSLs, there would be no change in the conclusion, unless discussed below, of the assessment had the 2009 levels been applied.

2. Volatile organic compounds (VOCs) were detected at both SWMUs 81 and 102. The derivation of the NMED SSLs does not include risk/hazard associated with the vapor intrusion pathway (migration to indoor air). As such, additional discussion of this pathway is required. Either provide justification as to why this pathway would result in minimal risk/hazard and not impact cumulative results or provide an analysis of this pathway (e.g., Johnson and Ettinger model) and include the associated risks/hazards in the cumulative calculations.

Specific Comments

1. Page 13, SWMU 81. Under the discussion of the 2007 RFI, a conclusion is presented indicating that “impacts to groundwater were considered minimal because the depth to groundwater is greater than 250 feet.” Depth to groundwater alone is not sufficient justification to exclude the potential for contaminants in soil to impact groundwater. As maximum site concentrations were compared to NMED SSLs for soil-to-groundwater migration, an extensive comment on this issue has not been drafted. However, for future evaluations, depth to groundwater is not a sufficient line of evidence that may solely be used to exclude evaluation of this pathway.
2. Table 6, Comparison of SWMU 81 Maximum Surface Soil Concentrations to NMED SSLs. Several comments are noted concerning this table:
 - a. The footnotes indicate that both the residential and industrial scenarios are applicable for this site. For completeness, cumulative risk and hazard for both scenarios should have been calculated and discussed. It is noted that the residential scenario results in more conservative estimates of risk and hazard, and thus addition of the cumulative results for the industrial scenario would not result in a change of the conclusions for this site.
 - b. It appears that only risk and hazard for the residential scenario have been provided; a footnote should be added clarifying what scenario is used for cumulative risk and hazard. (This comment applies to all the tables.)
 - c. The cumulative risk results for carcinogens were not calculated correctly. It appears that the formula for non-carcinogens was applied and the target risk level of 1E-05 was not included in the calculation. It is noted that correction of the risk levels for carcinogens will result in lower risks and would not impact the conclusions of the assessment.
3. Table 7, Comparison of SWMU 81 Maximum Combined Surface and Subsurface Soil Concentrations to NMED SSLs. Several comments are noted concerning this table:

- a. The footnotes indicate that only the industrial scenario is applicable for this site. However, the cumulative risks are based on the residential scenario. Clarification should be provided indicating the cumulative risk based on the residential scenario provides a more conservative evaluation of the overall risk than the industrial scenario.
 - b. The cumulative risk results for carcinogens were not calculated correctly. It appears that the formula for non-carcinogens was applied and the target risk level of 1E-05 was not included in the calculation. It is noted that correction of the risk levels for carcinogens will result in lower risks and would not impact the conclusions of the assessment.
 - c. Ecological risks are not provided with this table nor are potential ecological risks associated with subsurface soil addressed in the text. Justification of exclusion of the potential for burrowing animals and/or deeper rooting plants is required to exclude an ecological screen. Clarify why an ecological screening evaluation was not provided for the combined surface and subsurface soil. It is noted that the maximum concentrations provided on Table 7 are less than the U.S. EPA, Region 5, RCRA Ecological Screening Levels August 22, 2003 (<http://www.epa.gov/reg5rcra/ca/ESL.pdf>).
4. Table 14, Comparison of SWMU 102 Maximum Subsurface Soil Concentrations to NMED SSLs. Several comments are noted concerning this table:
- a. Several metals are included on the table that are not constituents of potential concern (COPCs) due to site maximum concentrations being less than the background reference value. The inclusion of these metals results in Table 14 being difficult to understand. It is suggested in the future, that risk summary tables only include those COPCs carried forward to the risk analysis.
 - b. The cumulative risk calculations for the organic constituents appear to be based upon residential SSLs. If this assumption (and calculation verification) is correct, there are several metals that should also have been included in the cumulative risk calculations. Arsenic, cadmium, mercury, and thallium all have maximum detected concentrations greater than background, and thus appear that they should have been retained as COPCs. It is noted that the text indicates the metals are within the range of background, and as such excluded from risk, but still, these metals are retained on Table 14 as COPCs. Clarify the table for consistency with the text.
 - c. The last column indicates those constituents with concentrations exceeding a screening level. For metals, only mercury and thallium as denoted as "yes". However, arsenic and cadmium also have concentration greater than background (as presented on the table), the residential SSL and/or the ecological SSL. Clarify why these are not denoted as "yes" in the last column. If site attribution analysis were

conducted to demonstrate that the site data were not significantly different from background, the table should be clarified with a foot note indicating such.

- d. The cumulative risk results for carcinogens were not calculated correctly. It appears that the formula for non-carcinogens was applied and the target risk level of 1E-05 was not included in the calculation. It is noted that correction of the risk levels for carcinogens will result in lower risks and would not impact the conclusions of the assessment.

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
AQS Senior Scientist and Project Lead

cc: Patricia Stewart, NMED (electronic)
Joel Workman, AQS (electronic)