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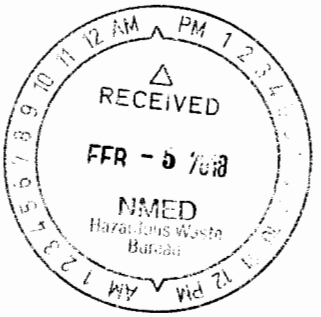

Mr. David Cobrain
New Mexico Environment Department (NMED)
Hazardous Waste Bureau
2905 Rodeo Park Dr. E/Bldg 1
Santa Fe, NM 87505

RE: Technical review of the responses to comments and revised text for the *Parcel 0 RCRA Facility Investigation Work Plan Revision 1*, Fort Wingate Depot Activity (FWDA), New Mexico

Dear Mr. Cobrain:

This letter discusses the responses to comments and the technical review of the revised risk assessment conducted as part of FWDA's, *Parcel 9 RCRA Facility Investigation Work Plan, Revision 1*, dated December 15, 2017. Responses to comments are adequate as provided unless addressed herein.

Comment No. 1. FWDA added Section 7 to the work plan outlining how the risk assessments will be conducted. The following new comments were noted on the added text.

1. Section 7.3.1, Conceptual Site Model. The work plan indicates that a phased approach to sampling will be conducted, with the initial round of sampling limited to the zero to one (1) foot interval. Upon completion of this sampling a risk assessment will be conducted, and data will be evaluated to see if nature and extent has been defined. If nature and/or extent is not defined, borings and sampling to depth will be conducted. A risk assessment is not needed until nature and extent has been defined. It is recommended that all data be evaluated and only upon agreement that nature and extent is define that the risk assessments be completed. A similar comment is noted for Section 7.4.1.3, in that ecological risks should only be completed once nature and extent has been defined.

2. Section 7.3.1, Conceptual Site Model. The work plan indicates that the NMED guidance directs a qualitative evaluation for the vapor intrusion pathway. This is not entirely correct. In some cases, a qualitative assessment is adequate. However, if the vapor intrusion pathway is complete, a quantitative assessment is required (refer to Section 2.5.2.3 of the NMED guidance). Determinations on the vapor intrusion pathway should only be determined once nature and extent has been defined.

Comment No.2. For arsenic, a site-specific background level of 5.6 milligrams per kilogram (mg/kg). At the time this background level was agreed upon (2013), an alternative method for evaluating risk to arsenic was needed as the NMED residential risk screening level at the time was 3.9 mg/kg. As the background level was above the screening level at the time, use of the

site-specific background level and determination of incremental risk above background was deemed acceptable. As noted in Section 7.3.4.2.1 of the Work Plan, comparison to the range of arsenic background is acceptable. If the levels of arsenic are above the range and arsenic is determined to be site related, incremental risk above the background level of 5.6 mg/kg was to be calculated. However, since 2013, the screening level for arsenic has been revised. The current residential screening level for arsenic is 7.07 mg/kg. Since the screening level for arsenic is now above the background level, if site concentrations exceed the site-specific background level, risk should be determined using the current screening level rather than the more conservative background level. Sections 7.3.3 and 7.3.4.2.1 should be revised accordingly.

Comment No. 3. The response to this comment is not acceptable. The revised text and response to the comment regarding comparison of mixed datasets allows that because the background reference values are based on an upper tolerance limit (UTL) comparison of IS data would not result in decision errors that are non-protective of human health or the environment. IS methodology is designed to reduce variances and small-scale variability. As such, IS data are more a reflection of the mean of a dataset rather than the UTL. Comparison of IS data to a UCL would be more appropriate than comparison to a UTL. Intuitively, comparison of a "mean" to an UTL seems conservative and likely to result in decision errors that result in stricter regulation. However, as the data are statistically incomparable, comparisons should be limited to a qualitative discussion at best. While some one-tailed statistical tests might be applied, the level of uncertainty would be high. Thus, NMED does not agree that discrete and IS data may be quantitatively compared at this time. NMED still recommends that FWDA collect IS background data for comparison to the proposed IS data. The comparison of the discrete background data to site IS data may be used as a qualitative line of evidence, but may not be used to eliminate an inorganic constituent as a potential constituent of concern. The position of the NMED remains unchanged: if IS are to be used, background IS must be conducted for quantitative comparison to site IS data. The paper (Incremental Sampling Methodology: Applications for Background Screening Assessments, Pooler, et al as provide with the comments on the Parcel 2 Work PLan) does address issues regarding IS site to IS background analyses, but as noted in the paper, there are still many uncertainties to address when comparing site IS data to discrete background data.

State and Federal regulatory authorities as well as the developers of ProUCL and IS applications are aware that at many sites, a large amount of discrete onsite and/or offsite background data are already available which cannot be directly compared with newly collected IS data. In order to provide a tool to compare the existing discrete background data with actual field onsite or background ISM data, a Monte Carlo Background Incremental Sample Simulator (BISS) module is being developed and evaluated for incorporation into ProUCL. It is noted that BISS will require a large existing discrete background data set. From this background database, it is understood that the BISS module would simulate incremental sampling methodology based on equivalent background incremental samples. The availability of a large discrete background data set collected from areas with geological conditions comparable to the decision units (DUs) of interest is a pre-requisite for successful application of this module. For now, the BISS module has been blocked for public/general use as this module is awaiting adequate guidance and instructions for its intended use on discrete background data sets. If FWDA wants to pursue comparing discrete data to ISM data, it is recommended that FWDA contact the EPA and

developers of ProUCL to see if Parcel 9 (along with Parcel 2) could be used as a beta case for testing new methodologies. As noted in Section 4.4.3.2 of the ITRC Guidance for IS, comparing or combining discrete data and IS data, conceptually, can only be done when specific conditions are met. Further, the guidance allows that one must be very cautious in how information is compared or combined since it is likely that one or more of the conditions presented in the bullleted items below will be violated to some degree. Note that NMED's preliminary evaluation of the currently available information regarding each condition at FWDA is also provided. The bulleted issues should be evaluated thoroughly prior to contacting EPA about using FWDA as a test facility for BISS.

- The design for selecting the discrete samples is known (i.e., simple random sampling, adaptive cluster sampling, etc.), and the discrete sample set is representative of the entire DU (i.e., the sampling design was statistically based and not biased).

  The discrete background sample locations were based on ecozones with specific locations chosen in the field. The sample locations were random-biased but not statistically determined. Further, the background data set is comprised of samples collected across various ecozones at FWDA versus specific soil types. Based on the locations and discussion of the discrete background data as provided by FDWA, there are actually only a limited number of data available representing Parcel 9 (with no samples having been collected within the Parcel).

  In looking at the background data representative of Parcel 9, it is not clear that a case can be made that the representative background samples were statically located and are of sufficient number for comparison to IS data. FWDA will need to make a case to justify that the entire database is appropriate for use.

- The samples have been collected using the same collection method or methods similar enough to ensure equivalent particle size distributions between types of samples.

  The background data collected as part of the 2010 effort used field screening of samples with a No. 4 screen (4.76 mm). However, Method 8330B uses a No. 10 mesh screen (2 mm). The inclusion of larger particles in the discrete data is likely to result in differences. Further, the discrete data were not ground prior to analyses, but Method 8330B will include grinding of the aliquots before collecting a subsample for analysis. Grinding of the samples will likely result in greater concentrations of metals compared to the discrete data.

  Given the differences in sample collection methods and processing of the data, there is a potential that the IS data will result in higher metals concentrations compared to the discrete background data.

- The samples are representative of the same soil conditions (e.g., soil type, depth).

  The 2010 background data were based on ecozones rather than soil type. A case will need to be made to the EPA that the ecozones reflect soil types and conditions. Also, the discrete samples collected in 2013 represent soil from 6-12 inches below ground surface

(bgs). For the IS, one sample is proposed for 0-6 inches and a second sample from 6-12 inches. Justification must be provided to show that the data from 6-12 inches bgs is appropriate for the surface IS data collected from the 0-6 inches bgs interval.

- The samples have been processed in a laboratory using the same sample preparation method or methods similar enough to ensure equivalent digestion and extraction of contaminants from the sample matrix for analysis.

  As noted above, there are differences in sample preparation, specifically grinding of samples, that could result in differences in concentrations and add a layer of uncertainty to the comparison of discrete to IS data.

- The samples have been analyzed in a laboratory using the same analytical method or methods similar enough to ensure equivalent analytic results.

  The proposed analytical methods are similar/consistent.

- The quality of both data sets is understood (via data validation reports) such that it is known that the data are appropriate for the intended use.

  Sufficient data quality parameters were collected with the discrete data to understand the integrity and support the intended use. It is not clear if triplicates will be collected for the IS data. Otherwise, it is agreed that sufficient data quality parameters are proposed to assess the integrity and data usability.

If you have any questions, please contact me at (801) 451-2864 or via email at pwalton@aqsnet.com.

Thank you,

Paige Walton
AQS Senior Scientist and Program Manager

cc: Ben Wear, NMED (electronic)
Joel Workman, AQS (electronic)