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ENTERED

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Mr. William Moats
New Mexico Environment Department
Hazardous Waste Bureau
5500 San Antonio NE
Albuquerque, NM 87109

RE: Draft Technical Review Comments on the data quality evaluation reports and analytical data (Appendix B), Kirtland Air Force Base, Albuquerque, New Mexico, *Quarterly Remediation and Site Investigation Report for the Bulk Fuels Facility Spill October 2010 through December 2010.*

Dear Mr. Moats:

This letter serves as a deliverable and addressed the draft technical review on the data quality evaluation reports and analytical data (Appendix B) in the Kirtland Air Force Base (AFB), Albuquerque, New Mexico, *Quarterly Remediation and Site Investigation Report for the Bulk Fuels Facility Spill October 2010 through December 2010.*

In order to complete this task, the review was conducted in three parts. The *Quality Assurance Project Plan [QAPP] for the Bulk Fuels Facility* (June 2010) was consulted as the first step to provide an overall assessment of the data validation program/process and quality control (QC) procedures. The primary question evaluated as this of the review was whether there is a process in place that will ensure integrity and usability of the data.

The next step of the review was to determine whether KAFB is implementing the above QAPP appropriately and whether the data are being evaluated and validated accordingly. Following that and as time permitted, a review of the how the data were being interpreted and the results applied was conducted.

1. Overall assessment of the data validation program/process and QC procedures. Is there a process in place that will ensure integrity and usability of the data?

A review of the *Quality Assurance Project Plan for the Bulk Fuels Facility* – June 2010 (QAPP) was performed to evaluate the data validation procedures and requirements for the Environmental Restoration Program, KAFB, New Mexico. Overall, the policy and procedures are thorough and give clear direction on the validation procedures. The following describes the Data Quality Objectives (DQOs) and the overall data review procedures.

The DQOs are defined in Section 4 of the QAPP. The DQOs "specify the type, quality, and quantity of data to be collected and how the data are to be used to make the appropriate decisions for the project." Section 4 accurately defined all the parameters needed to ensure assessment of data integrity and that those performing the data validation have a clear standard for the validation.

Data validation procedures are defined in Section 6 of the QAPP. Data validation is modeled after the EPA/Contract Laboratory Program (CLP) Functional Guidelines with appropriate modifications to those guidelines. Validation levels are defined and sufficient detail is given for each validation level.

The QAPP also has very detailed tables describing what qualifiers to place on data that is out of control. Tables 6-1 and 6-2 detail when to qualify data and what qualifiers to apply. These tables also define when to apply qualifiers and Table 6-3 gives the definition of each qualifier. If there are multiple flags for a given analyte, the most stringent flag is to be applied. Ten percent of the data is to have a Level IV validation.

Between the definition of the DQOs and the data validation program, this QAPP is very clear as to the expectation of the laboratory and those performing the data validation. This QAPP is very sound as written. No comments were noted on the QAPP.

2. Is KAFB implementing the procedures of the QAPP appropriately? Is KAFB evaluating and validating the data in the *Quarterly Remediation and Site Investigation Report for the Bulk Fuels Facility Spill October 2010 through December 2010* per the QAPP?

The October through December Quarterly report was reviewed to verify that the data validation adequately addressed the DQOs and data validation procedures defined in the QAPP. The review was a cursory review to verify that the validation met the objectives in the QAPP. The review did not involve an in-depth look at raw data. Below is an evaluation of the areas defined in the QAPP and their associated review in the Data Quality Evaluation Report (Appendix B).

Precision

Precision measures the reproducibility of measurements under a given set of conditions. Precision is discussed in Sections B2.4 and B3.4. Precision was evaluated for field duplicates, Laboratory Control Sample Duplicates and Matrix Spike Duplicates. Exceptions are noted and qualified when precision limits are exceeded.

Accuracy

Accuracy is a measure of the level of agreement between a measurement and a known true value. The report discusses accuracy in Sections B2.3 and B3.3. Exceptions are discussed in detail for the out of control criteria in the sub-sections of B2.3 and B3.3. Accuracy is discussed for calibration standards (ICV and CCV), LCS, MS/MSD, surrogates, internal standards, interference check standards and post digestion spikes. A cursory review indicates that results were properly qualified for the exceptions.

Representativeness

The QAPP defines representativeness as a qualitative expression of the degree to which sample data accurately and precisely represent a characteristic of a population, sampling point or an environmental condition. Representativeness is maximized by ensuring that the number and location of sampling points, sample collection and analysis methods are appropriate for the specific investigation and that the sampling and analysis program provides data that reflects "true" site conditions.

The report evaluated representativeness by assessing the following: the use of standard methods and reporting units, sample preservation, and holding-time compliance. This is appropriate for data validation.

Completeness

Completeness evaluation is covered in Section B2.1 for ground water samples and Section B3.1 for vapor samples. The QAPP defines completeness as the amount of valid measurements compared to the total amount generated with a goal of 95% completeness. The report states that the data is all considered valid as qualified (100% completeness).

Comparability

Comparability is the ability to compare one data set to another data set. This is achieved by using standardized methodology. Comparability is discussed in Sections B2.5 and B3.4, and found to be acceptable.

Elements of Quality Control including Method Blanks

Method banks and field blanks are discussed in Sections B2.3.2, B2.3.3 and B3.3.2. The report discusses issues with the blanks and blanks were qualified.

Comment:

Section B2.3.2, paragraph 2 indicates that: "Dissolved iron was also detected at a concentration greater than the RL in a few method blanks. The data were qualified as not detected and flagged "U" when the associated sample concentrations were less than five times the concentrations detected in the blanks." According to the QAPP, for method blank results greater than the RL, results above the RL should be flagged "J" not "U." Please review and resubmit if necessary.

Holding time expectations

The QAPP defines holding time as the length of time after sample collection to extraction and/or analysis. The report discussed holding time in Sections B2.2.1 and B3.2.1. The report lists exceptions for missed holding times. Qualifiers were applied for missed holding times as defined in the QAPP.

Comment:

Section B2.2.1 indicates that "the holding-time criterion of 48 hours for nitrate by Method E300 was exceeded by three (3) days for sample ST106-GW-10621-08102010. The result was qualified as estimated detected and flagged "J" in the sample." According to the QAPP, if the holding time is exceeded by a factor of two (2), the associated data should be flagged

"R." Please review and resubmit if necessary. As the specific analytes are not listed in Table B-5 and several holding times are beyond 2 days, please review all 300.0 holding times to ensure compliance.

Confirmation analyses
Confirmation is discussed in Section B2.4.5 with exceptions are noted and qualified.

Comment:
The following could not be readily found in the report:

1. Tuning for GCMS methods
2. Canister checks for air methods

It is possible that these items were discussed in the report but could not be readily found. Each of these items could potentially add additional qualifiers to a result. KAFB should address these issues and ensure that no additional qualifiers are warranted.

3. How is KAFB interpreting results and using them?

From a preliminary review, the validated and qualified data appear to be applied correctly. Spot checks of the sample delivery groups, analytical parameters, data qualification, and summary data tables did not reveal any anomalies. From the data presented and time constraints, it was not possible in every case to evaluate the ultimate data use. For example, it was impossible to verify the underlying data for plume maps. Additionally, it was not possible to determine how field duplicates were evaluated, whether the data was averaged, a single point was used, or if all data was retained.

Comment:
Given the number of field duplicate precision exceptions listed in B2.4.1 and B3.4.1, please clarify how duplicate data are evaluated and used.

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 Program Manager

cc: David Cobrain, NMED (electronic)
Joel Workman, AQS (electronic)
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