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Mr. James Bearzi
Hazardous Waste Bureau
New Mexico Environment Department
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Subject: Responses to NMED Observer Inquiries From RFETS Audit A-03-03

Dear Mr. Bearzi:

This letter transmits the Carlsbad Field Office (CBFO) response to two Observer Inquiries raised by New Mexico Environment Department (NMED) observers during Audit A-03-03 of Rocky Flats Environmental Technology Site (RFETS). The audit was conducted March 3-7, 2003.

One inquiry is regarding the analysis of a volatile organic compound (VOC) that was identified as a tentatively identified compound (TIC) in the semivolatile analytical fraction of samples at RFETS. The other inquiry is regarding the use of the U.S. Environmental Protection Agency's Contract Laboratory Program National Functional Guidelines for Inorganic and Organic Data Review in making usability decisions on WIPP data.

If you have any questions concerning these responses, please contact Mr. Kerry Watson at (505) 234-7357 or (505) 706-0066.

Sincerely,

Dr. Inés R. Triay
Manager

Enclosures

cc: w/enclosure
K. Watson, CBFO



Mr. James Bearzi

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bcc: w/enclosure

P. Roush, WTS (Operating Record)

bcc: w/o enclosure

A. Holland, CBFO

R. Knerr, CBFO

D. Miehl, CBFO

J. Kieling, NMED

J. Bearzi, NMED

C. Riggs, CTAC

Validity of Use of USEPA Functional Guidelines for WIPP Data Usability

A question has been raised by the State of New Mexico Environment Department (NMED) regarding the use of the United States Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review (OSWER 9240.1-05A-P, PB99-963506, EPA 540/R-99/08, October 1999) and the Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (OSWER 9240.1-35, PB99-963506, EPA 540-R-008, July 2002) for making usability determinations for data used in the characterization of Waste Isolation Pilot Plant (WIPP) solids samples.

While there are differences in specific requirements between the USEPA CLP and WIPP samples (environmental samples for CLP, TRU waste samples for WIPP), data requirements (CLP Statement of Work-specified data packages for CLP, WAP-specified data packages for WIPP) and sample analysis techniques (Statement of Work-specified analytical methods for CLP, modified SW-846 and TO-14 analytical methods for WIPP), there are fundamental principals, requirements and techniques common to both sets of samples and data.

Sample preparation, QA/QC requirements, instrument configuration and operation, linearity requirements and limits, Target Analyte lists (WIPP Target Analytes are contained in the CLP Statement of Work Target Analyte lists), blanks, calibration standards, performance evaluation standards and instrument performance checks are part of where both the USEPA CLP and WIPP programs converge. For WIPP purposes, these common areas are eminently amenable to having data usability determined from 1) use of WIPP requirements, augmented by 2) the reviewer's familiarity with the WIPP Hazardous Waste Facility Permit (HWFP), 3) the site's QAPjP and implementing procedures, 4) the reviewer's expert judgment and 5) incorporating the "Action" section of the Functional Guidelines.

The Functional Guidelines for Inorganic Data Review states, in the Introduction "This document is designed to offer the data reviewer guidance in determining the usability of analytical data..." and in the Introduction of the Functional Guidelines for Organic Data Review "In order to provide more specific usability statements, the reviewer must have a complete understanding of the intended use of the data." The WIPP HWFP, Section B3-1, under Comparability, states "The Permittees shall ensure that data usability criteria are consistently established and used by the generator/storage sites to assess the usability of analytical and testing data. The criteria shall address, as appropriate, the following:..." and lists 5 bullets and 4 sub-bullets regarding usability requirements.

The criteria listed in the 9 total bullets for WIPP data are all contained, virtually verbatim, in the USEPA CLP Functional Guidelines review documents.

With the 2 programs (WIPP and CLP) data having so much in common and so many areas of convergence, it is advantageous to all parties concerned to incorporate the use of the USEPA CLP Functional Guidelines into the review of WIPP data. First, the USEPA CLP is a tested, proven program that has met in the past and meets currently requirements for legal defensibility. It is a well-known, consistent program throughout the entire United States, producing evidence of known usability that has been used successfully in court cases. Any newly developed data usability criteria specifically in support of WIPP would be at risk of being initially challenged in court as brand new criteria, possibly without a "tried and proven" basis (and, in all probability, any newly developed usability criteria would be compared in court against the proven, defensible criteria from the CLP and the Functional Guidelines). Second, the program is already in existence and has been for many years. Incorporating the Functional Guidelines reviews into WIPP data review keeps WIPP from having to "reinvent the wheel" and has saved considerable money, man-hours and effort from being needlessly expended. Third, implementing the addition of the Functional Guidelines review by the sites has been done quickly and effectively. At this time, a great majority of the sites are using the Functional Guidelines for their data review, and all of the sites have familiarity with them. Finally, the data requirements are so fundamentally similar that the use of the Functional Guidelines is applicable to solids sampling and analysis for WIPP as written, and is a legitimate enhancement to the WIPP program when added to the requirements of the HWFP, the reviewers' expert judgment and the sites' Quality Assurance Project Plans and Standard Operating Procedure requirements.

The methods that have been used to generate the data for volatile and semivolatile analytes is subjected to several quality control and quality assurance procedures to assure that the data is capable of meeting the Quality Assurance Objectives. The ability to generate data of known quality by both of the VOA and SVOA methods is demonstrated by the Method Performance Sample (MPS) program and the QAPjP. The MPS program in this instance has demonstrated that method 8260B can be reliably used for the quantitation of all the target analytes in question. Further, the QAPjP requires that a laboratory control sample and a matrix spike and a matrix spike duplicate sample be prepared and analyzed with every analytical batch to assure that the analysis is performing correctly. For the VOA analysis the LCS and MS/MSD results were acceptable for all of the batches that had VOC target compounds observed in SVOA TICS. This demonstrates that the method was performing correctly and was capable of providing data of acceptable quality and therefore no method adjustments are necessary.

Response for VOC TIC Identified by SVOC Analysis

NMED has identified a concern at RFETS concerning the inclusion of tentatively identified compounds (TICS) that are volatile organic compound (VOC) target analyte compounds on the list of semi-volatile organic compounds (SVOC). NMED has disputed the CBFO interpretation of the WAP as elucidated in Clarification CAP-00-065, Question 2. In summary, this interpretation states that if a VOC TIC is found in greater than 25% of the SVOC samples in a waste stream, it does not need to be added to the SVOC target analyte list since it appears on the VOC target analyte list. If the compound is already on the VOC target analyte list, there is no reason to add it to the SVOC target analyte list because the analysis used is dependent on the compound, not the target analyte list.

The CBFO response is as follows:

1. 40 CFR 264.13 requires that WIPP develop and follow a WAP. WIPP cannot do other than what is required by the WAP, which is to use the methods specified in Table B-4 for the analytes listed.
2. Table B-4 "Required Organic Analysis and Test Methods" requires that 1,1,2-trichloroethane be analyzed using (among other possibilities) SW-846 Method 8260B.
3. SW-846 Method 8260B identifies sample preparation methods that can be used with VOCs. More vigorous extraction methods such as Soxhlet extraction is not appropriate since it will drive most, if not all, volatile organics out of the sample (cutting or grinding the sample, heating the sample for long periods of time). Since SW-846 Method 8260B is identified as the required method, WIPP must use the sample preparation methods cited in Method 8260B (the 5000 series methods).
4. The SW-846 Analyte to Method Cross Reference Table specifies the preparation and analysis methods that are appropriate for 1,1,2-trichloroethane. The preparation methods used with SVOCs and SW-846 Method 8270C (the 3000 series methods) are not listed because they are not appropriate. Volatile compounds will be lost when subject to the SVOC sample extraction procedures.
5. If a TIC is found in greater than 25% of the samples in the waste, the TIC will be added to the target list; however, if 1,1,2-trichloroethane is added to the SVOC target analyte list and analyzed with the RFETS procedure that implements SW-846 Method 8270C, the site would be analyzing it using a method that is inappropriate (according to both WAP Table B-4 and SW-846). NMED has made it clear that modification to analytical methods

prescribed in the WAP cannot be made without prior approval through the permit modification process.

6. RFETS would be wrong to use the preparation methods used with SW-846 Method 8270C with SW-846 Method 8260B. The preparation methods specified for use with Method 8270C would drive most of the 1,1,2-trichloroethane off, making those preparation methods a poor choice for use with Method 8260B. These preparation methods are not listed in SW-846 as appropriate for volatile organic compounds.
7. A site that identifies 1,1,2-trichloroethane as both a target analyte for VOCs and SVOCs is required by Table B-4 to analyze it using SW-846 Method 8260B because the WAP groups the compounds by Organic Analytical Group, not VOC or SVOC.
8. Knowing that the use of SVOC preparation methods is not appropriate for SW-846 Method 8260B, and knowing that SW-846 Method 8270C is not appropriate for 1,1,2-trichloroethane, a site that would include it in their SVOC analytical procedure would be in violation of the WAP.
9. If a site were to add the VOC to the SVOC target analyte list, the site would no longer need to track how often it appeared as a TIC in the SVOC analyses. When analyzed using the appropriate method, the results would be reported in duplicate, once for VOCs and once for SVOCs. The site would lose the ability to trend the appearance of the VOC in the SVOC analysis, thereby losing any opportunity to identify the reason for its appearance in the SVOC analysis.
10. Because both the WAP and SW-846 are clear that the extraction and analytical methods used for SVOCs are not appropriate for use with VOCs, the addition of a VOC to the SVOC target analyte list is an unnecessary administrative step. The addition of the VOC to the SVOC target analyte list would not result in additional information beyond what is reported under the current VOC target analyte list. Removing the VOC from SVOC TIC reporting will result in the loss of data (the identification of an analyte where it is not expected to be found).

The CBFO believes the guidance provided in Clarification CAO-00-065 and Hotline Question 119 are correct in that the addition of a compound to a target analyte list that is already included as a target analyte in another list will not result in additional characterization data. The waste stream characterization documented in the Acceptable Knowledge report is confirmed with the sample results for individual compounds. Identification of a compound as both a VOC and an SVOC will not result in two data points because a single analytical result will be used for both categorizations.