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Formerly Utilized Sites Remedial Action Program (FUSRAP)

ADMINISTRATIVE RECORD

for Maywood, New Jersey



U.S. Department of Energy



Department of Energy

Field Office, Oak Ridge

P.O. Box 2001

Oak Ridge, Tennessee 37831— 8723

April 22, 1992

Mr. Jeffery Gratz
Federal Facilities Section
U.S. Environmental Protection Agency
Region II
Jacob K. Javits Federal Building
New York, New York 10278

Dear Mr. Gratz:

DATA VALIDATION REQUIREMENTS FOR THE MAYWOOD AND WAYNE SITES

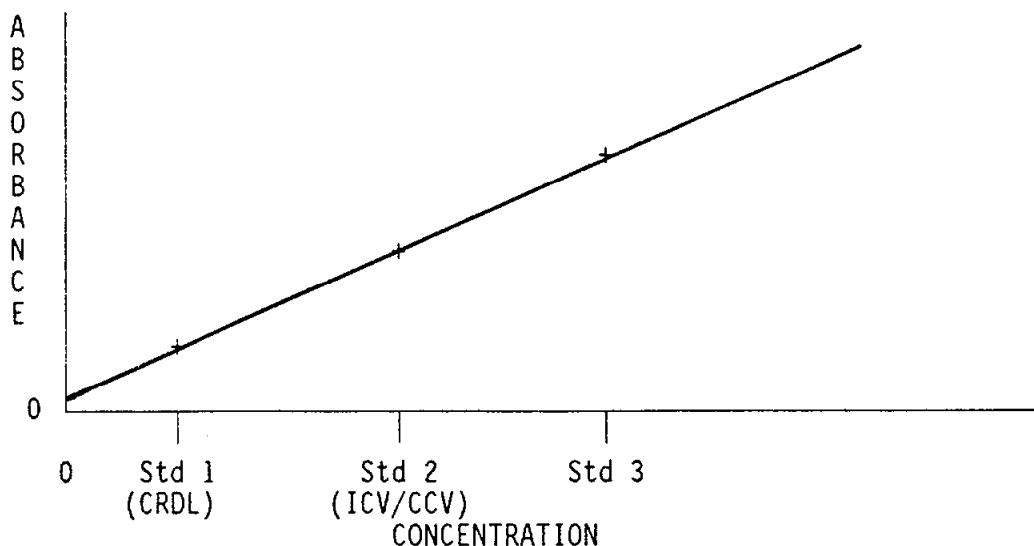
The purpose of this letter is to document the discussions of January 16, 1992 between members of the Department of Energy's (DOE) project management contractor, Bechtel National, and EPA Region II. These discussions were held because of Region II specific validation criteria for the contract required detection limit (CRDL) standard on samples analyzed in conjunction with the Maywood and Wayne remedial investigation projects.

By using the EPA Region II validation criteria, 25% to nearly 70% of some metals (i.e., lead, arsenic, thallium, and selenium) were rejected based on the CRDL calibration. EPA's national guidelines for validation yielded from 5% to less than 20% rejection of data for these metals. In DOE's opinion, which was concurred with by members of your staff, rejection of this data is unnecessary and is not based on any technical merit.

DOE's primary concern with the Region II validation criteria is that the CRDL standard gives some indication of sensitivity/linearity at the lower end of the curve. However, it does not give definitive information regarding the middle to upper end of the calibration curve. The initial calibration verification (ICV) continuing calibration verification (CCV) furnishes more relevant information due to its required position on the curve (see figure on following page). In addition, validation against a standard that is run only once for flame or furnace AA and perhaps 3-4 times for ICP (which is not designed to verify the calibration curve) and at the same time disregarding the recoveries of the ICV/CCV (which must meet the $\pm 10\%$ criteria) is to overlook the function of the ICV/CCV. The intent of the ICV/CCV is to verify the calibration curve.

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Below is a brief description and discussion of the calibration procedure under contract laboratory program-statement of work (CLP-SOW).

Calibration:

1. Blank plus 3 standards for flame atomic absorption (AA) as shown on the above graph or 4 standards for furnace AA, one of which must be at CRDL. Calibrate inductively coupled plasma (ICP) at midrange according to manufacturer's instructions.
2. Each standard must be within 5% of known value for flame or furnace AA (except for CRDL standard).
3. Run initial calibration verification (ICV) at midrange: must be within $\pm 10\%$ of known value.
4. Run CRI (CRDL standard for ICP) at 2x CRDL; Run CRA (CRDL standard for AA) at CRDL. Report results only (pp E-12, SOW 3/90).
5. Run samples or standards.
6. Run continuing calibration verification (CCV) after 10 samples for ICP or flame AA; run CCV after 20 injections for furnace AA.
7. Etc.

Given this calibration procedure, there is no technical basis for rejecting data at the low end of the curve (at or near the CRDL) when other standards at the middle and upper range of the curve meets the calibration criteria. As you may know, the recovery for the CRDL standard is not enforced in any CLP-SOW (it does not even need to meet the $\pm 5\%$ criteria that other standards must meet). Moreover, recovery criteria for the CRDL has not yet been established by the USEPA. As such, the CLP-SOW does not enforce any recovery requirements

for the CRDL. To validate and reject data against criteria that is not enforceable against the laboratory means that DOE is paying for data that meets the requirements of the contract but cannot be used in evaluating site conditions and preparing environmental documentation.

Given the above, the CRDL recovery criteria specified in Region II HW-2, Rev. X will not be used for the validation of data from the Maywood and Wayne remedial investigations. In lieu of HW-2, Rev. X CRDL recovery criteria, DOE will use a modified version of the USEPA Functional Guidelines which will require a review of the CRDL standard but will rely on technical judgement for data qualification rather than a specified recovery criteria for the CRDL.

A summary of the CRDL validation criteria which DOE will follow for the Maywood and Wayne remedial investigations is given below. Specifically, DOE will evaluate the CRDL standard utilizing a review of the other standards used to calibrate the instrument. Based on this evaluation DOE will, if necessary, qualify data as approximate or estimated. The rationale for the review of other standards is that our laboratory uses standards for arsenic, selenium, and thallium that are within \pm CRDL of the CRDL standard (see table below). This standard must meet the \pm 5% criteria that standards, other than the CRDL, must meet for calibration to be valid. This being the case, it is not technically sound to reject data within \pm CRDL of the CRDL due to poor recovery since a standard has been run that meets the stricter criterion of calibration standards. During the discussions with members of the Bechtel staff, your laboratory personnel expressed that a range of 2x the CRDL be used as the validation criteria. As shown below, our laboratory runs an additional standard that falls within this specified range for arsenic, selenium, and thallium.

Analyte	CRDL Standard Concentration ($\mu\text{g/L}$)	Additional Standard Concentration ($\mu\text{g/L}$)	CRDL 2x
Arsenic	10	15 \pm 0.75	20
Lead	3	15 \pm 0.75	6
Selenium	5	10 \pm 0.50	10
Thallium	10	15 \pm 0.75	20

In summary, the EPA Region II validation procedures, as currently written, requires that data be rejected based on CRDL recovery criteria. The laboratory is not required to enforce any recovery criteria for the CRDL based on CLP SOWs. The USEPA functional guidelines for data validation does not require the rejection of data based on CRDL recoveries. DOE will use a modified version of the functional guidelines for validation of the Maywood and Wayne remedial investigation data which will require a review of the CRDL recovery, and technical judgement will be used to determine data qualifications. This is especially important for the upper end of the

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calibration curves where evaluating the ICV/CCV is more appropriate to use to verify calibration. Based on previous discussions with EPA Region II, an agreement was reached for DOE to use this approach for the validation of the Maywood and Wayne remedial investigation data. If you have any questions or need additional information, please contact me at (FTS) 626-9634.

Sincerely,



David G. Adler, Site Manager
Former Sites Restoration Division

cc: M. E. Redmon, BNI
S. D. Liedle, BNI
W. McNeill, SAIC