



Roy F. Weston, Inc.  
Suite 5700  
700 5th Avenue  
Seattle, Washington 98104-5057  
206-521-7600 • Fax 206-521-7601

13 February 1997

Mr. Martin Hausladen, SFD-8-2  
U.S. EPA Region IX  
75 Hawthorne Street  
San Francisco, CA 94105

WO 4900-006-008-2000  
DCN 4900-006-008-AABI

Subject: Analytical Data Quality, Long Beach Naval Station  
Contract No. 68-W9-0046  
Work Assignment No. 46-35-9379

Dear Mr. Hausladen:

An independent data validation review was performed on analytical results received from the Navy's contractor. Data validation was performed following the guidelines and format described in the EPA National Function Guidelines for Organic Data Review (OSWER 9240.1-05, Feb. 1994) and National Function Guidelines for Inorganic Data Review (OSWER 9240.1-05-01, Feb 1994) modified to include specific analytical methods and requirements of the Long Beach Remedial Investigation Quality Assurance Project Plan and laboratory SOPs submitted to Roy F. Weston, Inc. (WESTON®).

Data, in general, were acceptable and of high quality with the possible exception of some organotin results, which were discussed in WESTON's revised validation memorandum of 4 February 1997. For analyses other than organotins, a number of analytical results or detection limits for specific analytes in individual samples were qualified as estimated concentrations (J/UJ) due to minor exceedances of quality control criteria. It should be noted that data qualified as estimated are considered of acceptable quality and are useable for all purposes including site characterization, risk assessment, and remedial design.

Analytical results were most commonly qualified as estimated for the following reasons:

- The difference between instrument response factors for initial and continuing calibrations slightly exceeded QC criteria for individual analytes. Analytical results in these cases could exhibit either a slightly high or low bias depending upon the difference between calibration results.
- Matrix spike and/or surrogate spike compound recoveries were outside QC limits. This could introduce either a slight low or high bias depending upon whether recoveries were low or high.
- Sample-specific matrix effects were evident for individual metals, which resulted in a slightly greater uncertainty in reported concentrations.
- Low concentrations of several organic analytes reported in samples were qualified as non-detected due to laboratory blank contamination. This was noted most often for common laboratory contaminants such as methylene chloride, acetone, 2-butanone, and phthalates. Laboratory method blanks associated with samples submitted for metals analysis contained low concentrations of several metals. Laboratory blank concentrations, while above instrument detection limits, were



usually less than the reporting limit. These analytes were qualified as nondetected based on comparable levels in both samples and blanks.

The organotin data were reviewed using Bechtel Laboratory standard operating procedures (SOPs) provided to WESTON. Organotin results qualified as estimated concentrations (J) probably exhibit a low bias with actual concentrations higher than those reported and, for nondetected compounds, actual detection limits are higher than reported. Rejected data are not useable for any purpose. Resampling and reanalysis would be required to verify the presence or absence of organotin compounds at those stations. Rejection of monobutyltin results should not reflect on the Navy's laboratory since it is extremely difficult to analyze. An alternative to rejecting the MBT (and in some cases DBT) data may be to raise detection limits based on laboratory evaluation of matrix spike results. Organotin analytical results were most commonly qualified as estimated for the following reasons:

- A large number of results were qualified as undetected (UJ) due to ongoing laboratory blank contamination. In most of these cases, revised detection limits are above project objectives and ecological screening concentrations. For a risk assessment these data would likely be used with concentrations of one-half the detection limit for nondetected analytes, assuming that the analyte was present in other samples from the same operable unit. It should be noted that the laboratory should have investigated another source of reagents or prepared their own from high-purity materials rather than using reagents known to be contaminated.
- A number of sample results were rejected due to excessively low matrix spike (MS) and laboratory control sample (LCS) spiked compound recoveries.
- A number of sample results were rejected (R) or qualified as estimated concentrations (J) based on holding time exceedances or improper sample preservation. While the laboratory SOP cites a Battelle study indicating TBT stability for longer than one month, samples in that study were frozen at  $-18^{\circ}\text{C}$ . At least 10 of the 15 coolers from the Long Beach site were received at the laboratory at temperatures ranging from about  $10^{\circ}\text{C}$  to over  $20^{\circ}\text{C}$ , making it highly likely that analyte degradation had occurred.

Please call me at (206) 521-7668 if you have questions.

Sincerely,

ROY F. WESTON, INC.



Roger McGinnis, Ph.D.  
Senior Chemist

cc: K. Brasaemle (WESTON)  
N. Musgrove (WESTON)  
PMO  
Chron