



ICF Consulting / Laboratory Data Consultants

Environmental Services Assistance Team, Region 9
1337 South 46th Street, Building 201, Richmond, CA 94804-4698
Phone: (510) 412-2300 Fax: (510) 412-2304

MEMORANDUM

TO: Lisa Hanusiak, Remedial Project Manager
Site Cleanup Section 3, SFD-7-3

THROUGH: Rose Fong, ESAT Task Order Project Officer (TOPO)
Quality Assurance (QA) Program, PMD-3

FROM: Doug Lindelof, Data Review Task Manager
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68-W-01-028
Technical Direction Form No.: 00905073

DATE: March 7, 2006

SUBJECT: Review of Analytical Data, Tier 3

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

Site:	Alhambra
Site Account No.:	09 ES LA01
CERCLIS ID No.:	CAD980818579
Case No.:	34815
SDG No.:	MY2906
Laboratory:	CompuChem (LIBRTY)
Analysis:	Dissolved Metals by ICP-MS and Dissolved Mercury
Samples:	15 Groundwater Samples (see Case Summary)
Collection Date:	November 14, 15, 16, 17, 18, and 21, 2005
Reviewer:	Stan Kott, ESAT/Laboratory Data Consultants

This report has been reviewed by the EPA TOPO for the ESAT contract, whose signature appears above.

If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.

Attachment

cc: Edward Messer, CLP PO USEPA Region 4
Steve Remaley, CLP PO USEPA Region 9

CLP PO: FYI Action

SAMPLING ISSUES: Yes No

Data Validation Report

Case No.: 34815
SDG No.: MY2906
Site: Alhambra
Laboratory: CompuChem (LIBRTY)
Reviewer: Stan Kott, ESAT/LDC
Date: March 7, 2006

I. CASE SUMMARY

Sample Information

Samples: MY2905, MY2906, MY2908 through MY2912,
MY2915, and MY2918 through MY2924
Concentration and Matrix: Low Concentration Groundwater
Analysis: Dissolved Metals by ICP-MS and Dissolved Mercury
SOW: ILM05.3 and Modification Reference Number: 1256.0
Collection Date: November 14, 15, 16, 17, 18, and 21, 2005
Sample Receipt Date: November 15, 16, 17, 18, 19, and 22, 2005
Preparation Date: December 12, 2005
Analysis Date: December 13, 2005

Field QC

Field Blanks (FB): Not Provided
Equipment Blanks (EB): MY2906, MY2908, MY2912, MY2919, MY2921, and
MY2923
Background Samples (BG): Not Provided
Field Duplicates (D1): MY2910 and MY2911

Laboratory QC

Method Blanks & Associated Samples: Preparation Blank-Water (PBW) and
samples listed above
Matrix Spike: MY2906S and MY2908S (See Additional Comments)
Duplicates: MY2906D and MY2908S (See Additional Comments)
ICP Serial Dilution: MY2906L

Analysis: Dissolved Metals by ICP-MS and Dissolved Mercury

<u>Analyte</u>	<u>Sample Preparation and Digestion Date</u>	<u>Analysis Date</u>
ICP-MS Metals	December 12, 2005	December 13, 2005
Mercury	December 12, 2005	December 13, 2005
Percent Solids	Not Applicable	Not Applicable

CLP PO Action

The Traffic Report/Chain of Custody (TR/COC) record form did not specify a sample to be used for laboratory quality control (QC). The laboratory contacted the Sample Management Office (SMO) requesting permission to choose the QC sample. The laboratory was given permission by Region 9. As a result, the laboratory performed QC analysis on samples MY2906 and MY2908, which are equipment blank samples, and not representative of the environmental sample matrix.

Sampling Issues

1. The TR/COC record forms did not specify a sample to be used for laboratory QC. As a result, the laboratory performed QC analysis on samples MY2906 and MY2908, which are equipment blank samples, and not representative of the environmental sample matrix.
2. The results for zinc in samples MY2905, MY2909, MY2915, MY2918, MY2920, MY2922, and MY2924 are estimated high (J+) because of equipment blank contamination. The reported results of 32.6 µg/L, 17.4 µg/L, 9.2 µg/L, and 15.3 µg/L for zinc in equipment blanks MY2906, MY2908, MY2919, and MY2921, respectively, exceed the contract required quantitation limit (CRQL) of 2.0 µg/L.

Additional Comments

The laboratory selected sample MY2906 for ICP-MS laboratory QC analysis and selected sample MY2908 for mercury laboratory QC analysis. Both samples are equipment blanks.

The samples in this SDG were analyzed for dissolved antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, silver, thallium, vanadium, zinc, and molybdenum by ICP-MS under Modified Analysis Request (MAR), Modification Reference Number 1256.0. Dissolved mercury was analyzed by the CLP cold vapor atomic absorption method.

The TR/COC record forms indicate samples were collected for dissolved metals. The filter pore size was not specified.

Analytical results are listed in Table 1A with qualifications. Definitions of data qualifiers used in Table 1A are listed in Table 1B.

This report was prepared in accordance with the following documents:

- X Region 9 Standard Operating Procedure 906, *Guidelines for Data Review of Contract Laboratory Program Analytical Services (CLPAS) Inorganic Data Packages*;
- X *Request for Quote for Modified Analysis* (SOW flexibility clause), Modification Reference Number: 1256.0, Title: MS061505, August 23, 2005;
- X *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis Multi-Media, Multi-Concentration ILM05.3*, March 2004; and
- X *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004.

II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

	<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1.	Data Completeness	Yes	
2.	Sample Preservation and Holding Times	Yes	
3.	Calibration	Yes	
	a. Initial		
	b. Initial and Continuing Calibration Verification		
	c. CRQL Check Standard (CRI)		
	d. ICP-MS Tuning Analysis		
4.	Blanks	No	B,C
5.	ICP Interference Check Sample (ICS)	Yes	
6.	Laboratory Control Sample (LCS)	Yes	
7.	Duplicate Sample Analysis	No	D
8.	Matrix Spike Sample Analysis	Yes	
9.	ICP Serial Dilution Analysis	Yes	
10.	ICP-MS Internal Standards	Yes	
11.	Field Duplicate Sample Analysis	No	E
12.	Sample Quantitation	Yes	A
13.	Overall Assessment	No	F

N/A = Not Applicable

III. VALIDITY AND COMMENTS

- A. Results above the method detection limit (MDL) but below the CRQL (denoted with an "L" qualifier) are estimated and flagged "J" in Table 1A.

Results above the MDL but below the CRQL are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of quantitation.

- B. The following results are qualified as non-detected, estimated and flagged "J+" or "UJ" in Table 1A due to equipment blank contamination.

X Copper in samples MY2905, MY2909, MY2910, and MY2911

X Zinc in samples MY2905, MY2909, MY2915, MY2918, MY2920, MY2922, and MY2924

Samples with copper results greater than the MDL but less than the CRQL are qualified and reported as non-detected (UJ). Samples with zinc results greater than the CRQL are estimated high (J+) unless the zinc concentration in the sample exceeds 5 times the amount in the associated equipment blank.

Equipment blanks are associated with samples that have the same collection date. See Table 1A for equipment blank analyte concentrations.

An equipment blank is reagent water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

C. The following results are reported as non-detected (U) in Table 1A due to low level preparation, continuing calibration, or equipment blank contamination.

- X Antimony in samples MY2905, MY2906, MY2909, MY2910, MY2911, MY2915, MY2922, and MY2924
- X Chromium in sample MY2905, MY2909, and MY2918
- X Copper in samples MY2920, MY2922, and MY2924
- X Molybdenum in samples MY2906, MY2908, MY2912, MY2919, and MY2921
- X Nickel in samples MY2905, MY2909, MY2911, MY2918, and MY2920
- X Vanadium in sample MY2920

Sample results greater than or equal to the MDL but less than the CRQL are reported as non-detected (U) at the respective CRQL. The molybdenum value (0.14 µg/L) in preparation blank PBW is greater than the MDL but less than the CRQL. The values for antimony in continuing calibration blanks CCB1 (0.082 µg/L), CCB2 (0.10 µg/L), CCB3 (0.097 µg/L), and CCB4 (0.090 µg/L) are greater than the MDL but less than the CRQL. The values for chromium in the equipment blanks MY2906, MY2908, and MY2919; copper in equipment blanks MY2921 and MY2923; nickel in equipment blanks MY2906, MY2908, MY2912, MY2919, and MY2921; and vanadium in equipment blank MY2921 are greater than the respective MDLs but less than the respective CRQLs. See Table 1A for specific analyte concentrations.

A preparation blank is an analytical control that contains distilled, deionized water, or baked sand for solid matrices, and reagents, which is carried through the entire analytical procedure. The preparation blank is used to determine the level of contamination introduced by the laboratory during preparation and analysis.

A continuing calibration blank (CCB) consists of deionized, distilled water and reagents. It is analyzed after the continuing calibration verification (CCV) standard, at a frequency of every 10 samples and at the end of the analytical run to monitor analyte carry-over.

An equipment blank is reagent water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

D. The following results are estimated and flagged "J" or "UJ" in Table 1A because of a laboratory duplicate result outside method QC limits.

- X Copper in all samples

The laboratory duplicate result for copper does not meet the $\sqrt{\text{CRQL}}$ criterion for precision as listed below.

Analyte	Absolute Difference, µg/L
Copper	3.2

Since the absolute difference of 3.2 µg/L obtained for copper in the analysis of laboratory duplicate sample MY2906D exceeds the 2.0 µg/L CRQL, results for copper in all samples are considered quantitatively uncertain.

Duplicate analyses demonstrate the analytical precision obtained for each sample matrix. The imprecision between duplicate results may be due to high levels of solids in the sample or poor laboratory technique.

- E. A relative percent difference (RPD) of 64 was obtained for zinc in the analysis of field duplicate pair samples MY2910 and MY2911. In addition, the absolute difference of 1.1 µg/L was obtained for manganese and exceeds the 1.0 µg/L CRQL for the field duplicate pair. Since sampling variability is included in the measurement, field duplicate results are expected to vary more than laboratory duplicates which have a ≤ 20 RPD or \leq CRQL criteria for precision. The effect on data quality is not known.

The analysis of field duplicate samples is a measure of both field and analytical precision. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, high levels of solids in the sample, or poor sampling or laboratory technique.

- F. According to the Inorganic Functional Guidelines, samples identified as equipment blanks cannot be used for duplicate, matrix spike, and ICP serial dilution sample analyses.

The TR/COC record forms did not specify a sample to be used for laboratory QC. The laboratory contacted the Sample Management Office (SMO) requesting permission to choose the QC sample. The laboratory was given permission by Region 9. As a result, the laboratory performed QC analysis on samples MY2906 and MY2908, which are equipment blanks, and therefore not representative of the environmental sample matrix.

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the document *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004.

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

