ICF International / 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: Chris Lichens, Remedial Project Manager
Site Cleanup Section 4, SFD-7-4

THROUGH: Rose Fong, ESAT Task Order Manager (TOM)
Quality Assurance (QA) Program, MTS-3

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

ESAT Contract No.: EP-W-06-041
Technical Direction Form No.: 00105053

DATE: May 1, 2007

SUBJECT: Review of Analytical Data, Tier 3

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

Site:	Omega Chem OU2
Site Account No.:	09 BC LA02
CERCLIS ID No.:	CAD042245001
Case No.:	36072
SDG No.:	MY34K3
Laboratory:	Sentinel, Inc. (SENTIN)
Analysis:	Select CLP Dissolved Metals by ICP-AES
Samples:	10 Groundwater Samples (see Case Summary)
Collection Date:	March 8, 9, and 12, 2007
Reviewer:	Stan Kott, ESAT/Laboratory Data Consultants

This report has been reviewed by the EPA TOM 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: Cynthia Gurley, CLP PO USEPA Region 4
Steve Remaley, CLP PO USEPA Region 9

CLP PO: [X] FYI [ ] Action

SAMPLING ISSUES: [X] Yes [ ] No

Data Validation Report

Case No.: 36072
SDG No.: MY34K3
Site: Omega Chem OU2
Laboratory: Sentinel, Inc. (SENTIN)
Reviewer: Stan Kott, ESAT/LDC
Date: May 1, 2007

I. CASE SUMMARY

Sample Information

Samples:	MY34K3, MY34K5 through MY34K9, and MY34L0 through MY34L3
Concentration and Matrix:	Low/Medium Concentration Groundwater
Analysis:	Select CLP Dissolved Metals by ICP-AES
SOW:	ILM05.3
Collection Date:	March 8, 9, and 12, 2007
Sample Receipt Date:	March 10 and 14, 2007
Preparation Date:	March 15, 2007
Analysis Date:	March 16, 2007

Field QC

Field Blanks (FB):	Not Provided
Equipment Blanks (EB):	MY34K9
Background Samples (BG):	Not Provided
Field Duplicates (D1):	MY34K5 and MY34K6

Laboratory QC

Method Blank & Associated Samples:	Preparation Blank-Water (PBW) and samples listed above
Matrix Spike:	MY34K5S
Duplicates:	MY34K5D
ICP Serial Dilution:	MY34K5L

Analysis: Select CLP Dissolved Metals by ICP-AES

Analyte	Sample Preparation and Digestion Date	Analysis Date
ICP-AES Metals	March 15, 2007	March 16, 2007
Percent Solids	Not Applicable	Not Applicable

CLP PO Action

None

Sampling Issues

1. The laboratory stated that a temperature indicator bottle was not provided in the cooler for samples MY34K9 through MY34L3. The laboratory used a laser thermometer to determine the cooler temperature to be -3.5ºC. This temperature exceeds the 4º±2ºC limit specified in the method; however, no adverse effect on data quality is expected.

2. The Traffic Report/Chain of Custody (TR/COC) record form did not specify a sample to be used for laboratory QC. The laboratory selected sample MY34K5 for QC analysis and notified the Sample Management Office (SMO). The effect on data quality is not known.

3. The laboratory indicated the samples were prepared at half the volume specified in the preparation method due to insufficient sample volume. The effect on data quality is not known.

Additional Comments

Samples for this SDG were analyzed for dissolved aluminum, calcium, iron, magnesium, potassium, and sodium by inductively coupled plasma-atomic emission spectroscopy (ICP-AES).

All method requirements specified in the EPA Contract Laboratory Program (CLP) Inorganic Statement of Work (SOW), except as noted, have been met.

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 *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:

	Parameter	Acceptable	Comment
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)		
4.	Blanks	No	B
5.	ICP Interference Check Sample (ICS)	Yes	
6.	Laboratory Control Sample (LCS)	Yes	
7.	Duplicate Sample Analysis	Yes	
8.	Matrix Spike Sample Analysis	Yes	
9.	ICP Serial Dilution Analysis	No	C
10.	ICP-MS Internal Standards	N/A	
11.	Field Duplicate Sample Analysis	No	D
12.	Sample Quantitation	Yes	A
13.	Overall Assessment	Yes	

N/A = Not Applicable

III. VALIDITY AND COMMENTS

A. Results above the method detection limit (MDL) but below the contract required quantitation limit (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 estimated high and flagged "J+" in Table 1A due to equipment blank contamination.

X Aluminum in samples MY34L0, MY34L2, and MY34L3

Sample results greater than the CRQL are qualified as estimated high (J+) unless the concentration of the analyte in the sample exceeds 5 times the amount in any associated blank.

The reported result of 253 µg/L for aluminum in equipment blank sample MY34K9 exceeds the 200 µg/L CRQL.

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 estimated and flagged "J" in Table 1A because an ICP serial dilution result is outside method QC limits.

X Calcium in all samples except MY34K9

The percent difference for the ICP serial dilution analysis of sample MY34K5L did not meet the 10% criterion for calcium as shown below.

Analyte	% Difference
Calcium	+12

Results reported for calcium in the samples listed above are considered quantitatively uncertain. Chemical and physical interferences may exist due to sample matrix effects. The result for calcium in the diluted sample was higher than the original. Therefore, the reported sample results for calcium may be biased low.

A five-fold dilution of the laboratory QC sample is performed in association with the ICP procedure to indicate whether interference exists due to sample matrix effects. If the analyte concentration is sufficiently high (minimally a factor of 50 above the MDL in the original sample), the five fold serial dilution must agree within 10% of the original results after correction for dilution.

D. Relative percent differences (RPDs) of 140 and 184 were obtained for aluminum and iron, respectively, in the analysis of field duplicate pair samples MY34K5 and MY34K6. 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 ∀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.

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.