



**ICF Consulting / Laboratory Data Consultants**

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MEMORANDUM

TO: Chris Lichens, Remedial Project Manager  
Site Cleanup Section 4, SFD-7-4

THROUGH: Rose Fong, ESAT Task Order Project Officer (TOPO)  
Quality Assurance (QA) Program, MTS-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.: 00905082 Amendment 2

DATE: June 23, 2006

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.:	34569
SDG No.:	Y2312
Laboratory:	A4 Scientific, Inc. (A4)
Analysis:	Volatiles
Samples:	4 Groundwater Samples (see Case Summary)
Collection Date:	September 2, 2005
Reviewer:	Calvin Tanaka, 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: Ray Flores, CLP PO USEPA Region 6  
Steve Remaley, CLP PO USEPA Region 9

CLP PO:  Attention  Action

SAMPLING ISSUES:  Yes  No



## Data Validation Report

Case No.: 34569  
SDG No.: Y2312  
Site: Omega Chem OU2  
Laboratory: A4 Scientific, Inc. (A4)  
Reviewer: Calvin Tanaka, ESAT/LDC  
Date: June 23, 2006

### I. CASE SUMMARY

#### Sample Information

Samples: Y2312, Y2315, Y2316, and Y2317  
Concentration and Matrix: Low Concentration Water  
Analysis: Volatiles  
SOW: OLC03.2  
Collection Date: September 2, 2005  
Sample Receipt Date: September 3, 2005  
Extraction Date: Not Applicable  
Analysis Date: September 7 and 8, 2005

#### Field QC

Field Blanks (FB): Y2317  
Equipment Blanks (EB): Not Provided  
Trip Blank (TB): Not Provided  
Background Samples (BG): Not Provided  
Field Duplicates (D1): Y2315 and Y2316

#### Laboratory QC

Method Blanks & Associated Samples:  
VBLK82: Y2312, Y2312DL, Y2315, Y2316, Y2317, Y2317MS,  
and Y2317MSD  
VBLK83: Storage blank VHBLK01

#### Tables

1A: Analytical Results with Qualifications  
1B: Data Qualifier Definitions for Organic Data Review  
2: Calibration Summary

#### CLP PO Action

None.

#### CLP PO Attention

1. Detected results for some analytes are qualified as nondetected and estimated (U,J) due to method blank, storage blank, and field blank contamination (see Comment B).
2. Results for methylene chloride in all samples are qualified as estimated (J) due to a calibration problem (see Comment C).

3. Results for some analytes in samples Y2312 and Y2315 are qualified as estimated (J) due to deuterated monitoring compound (DMC) recovery problems (see Comment D).

### Sampling Issues

1. Detected results for acetone and benzene are qualified as nondetected and estimated (U,J) due to field blank contamination (see Comment B).
2. No sample was designated for Alaboratory QC@ on the traffic report & chain of custody record (TR/COC). The laboratory performed matrix spike/matrix spike duplicate (MS/MSD) analysis on Y2317. However, Y2317 is a field blank; consequently, spike recovery and relative percent difference data are not meaningful.

### Additional Comments

The DMC trans-1,3-dichloropropene-d4 had RRFs below the 0.05 validation criterion in the initial and continuing calibrations (see Table 2). Quantitation of the analytes associated with this DMC may have been affected by the low RRFs (see attached Table 9 from the Functional Guidelines).

Other than a laboratory artifact (approximate retention time of 8.2 minutes), tentatively identified compounds (TICs) were found in sample Y2312 (see attached Form 1LCF).

The laboratory performed manual integrations on samples due to incorrect auto integration. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.

This report was prepared in accordance with the following documents:

- X ESAT Region 9 Standard Operating Procedure 901, *Guidelines for Data Review of Contract Laboratory Program Analytical Services (CLPAS) Volatile and Semivolatile Data Packages*;
- X USEPA Contract Laboratory Program Statement of Work for Analysis of Low Concentration Organic, OLC03.2, December 2000; and
- X USEPA Contract Laboratory Program National Functional Guidelines for Low Concentration Organic Data Review, June 2001.

## II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

	<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1.	Holding Time/Preservation	Yes	
2.	GC/MS Tune/GC Performance	Yes	
3.	Initial Calibration	No	C
4.	Continuing Calibration	Yes	
5.	Laboratory Blanks	No	B
6.	Field Blanks	No	B
7.	Deuterated Monitoring Compounds	No	D
8.	Matrix Spike/Matrix Spike Duplicates	N/A	
9.	Laboratory Control Samples/Duplicates	N/A	
10.	Internal Standards	Yes	
11.	Compound Identification	Yes	
12.	Compound Quantitation	Yes	A, E
13.	System Performance	Yes	
14.	Field Duplicate Sample Analysis	Yes	

N/A = Not Applicable

## III. VALIDITY AND COMMENTS

A. The following results, denoted with an AL@ qualifier, are estimated and flagged AJ@ in Table 1A.

X All detected results below the contract required quantitation limits

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

B. The following results are qualified as nondetected and estimated due to method blank, storage blank, and field blank contamination and are flagged AU,J@ in Table 1A.

X Acetone in samples Y2315 and Y2316

X Methylene chloride in samples Y2312, Y2315, and Y2317

X Benzene in sample Y2312

Acetone was found in method blank VBLK83 and field blank Y2317, methylene chloride was found in storage blank VHBLK01, and benzene was found in field blank Y2317 (see Table 1A for concentrations). Results for the samples listed above are considered nondetected and estimated (U,J) and quantitation limits have been raised according to blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result and reported as nondetected. If the sample result is less than the CRQL, the result is reported as nondetected at the CRQL.

The acetone result for sample Y2312 (29  $\Phi$ g/L) is not qualified as nondetected and estimated since the concentration exceeds 10 times the amount in field blank Y2317 (1.7  $\Phi$ g/L). The chloroform result for sample Y2312 (86  $\Phi$ g/L) is not qualified as nondetected and estimated since the concentration exceeds 5 times the amount in storage blank VHBLK01 (0.21  $\Phi$ g/L).

*A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.*

*A laboratory method blank is laboratory reagent water or baked sand analyzed with all reagents, deuterated monitoring compounds, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.*

*A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory introduced contamination will be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field QC problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.*

- C. Results for the following analyte are qualified as estimated due to a large percent relative standard deviation (%RSD) in the initial calibration and are flagged "J" in Table 1A.

X Methylene chloride in all samples, all method blanks, and storage blank VHBLK01

The %RSD exceeded the #30.0% validation criterion for methylene chloride in the initial calibration (see Table 2).

The DMC trans-1,3-dichloropropene-d4 also had a %RSD that exceeded the  $\leq$ 30.0% validation criterion in the initial calibration (see Table 2). Quantitation of the analytes associated with this DMC may have been affected by the high %RSD (see attached Table 9 from the Functional Guidelines).

*The initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear calibration curve.*

- D. Results for the following analytes are qualified as estimated due to DMC recoveries outside QC limits and are flagged AJ@ in Table 1A.

{Chloroform-d}

X 1,1-Dichloroethane and chloroform in sample Y2312

{trans-1,3-Dichloropropene-d4}

X cis-1,3-Dichloropropene, trans-1,3-dichloropropene, and 1,1,2-trichloroethane in sample Y2315

The DMC recoveries outside QC limits are shown below.

<u>Sample</u>	<u>DMC</u>	<u>% Recovery</u>	<u>QC Limits</u>
Y2312	Chloroethane-d5	210	60-126
Y2312	Chloroform-d	170	80-123
Y2315	trans-1,3-Dichloropropene-d4	78	80-128
Y2317MSD	1,1,2,2-Tetrachloroethane-d2	71	75-131

Detected results for affected analytes where DMC recoveries fell below QC limits may be biased low; where results are nondetected, false negatives may exist. Detected results for affected analytes where DMC recoveries exceeded QC limits may be biased high. For DMC recoveries that exceeded QC limits, only detected results for associated analytes are qualified. The DMC chloroethane-d5 recovery for sample Y2312 exceeded the QC limit but results were not qualified because they were nondetects. The samples were not reanalyzed.

*Surrogates (e.g., deuterated monitoring compounds (DMCs)) are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with DMCs prior to purging. DMCs provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.*

- E. Sample Y2312 was reanalyzed at a 50-fold dilution due to high levels of trichlorofluoromethane, 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, chloroform, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.



**TABLE 1B**  
**DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW**

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Low Concentration Organic Data Review," June 2001.

- U     The analyte was analyzed for, but was not detected above the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.
  
- L     Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
  
- J     The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
  
- NJ    The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
  
- UJ    The analyte was not detected above the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
  
- R     The sample results are unusable. The analyte may or may not be present in the sample.

Table 2  
Calibration Summary

Case No.: 34569  
 SDG No.: Y2312  
 Site: Omega Chem OU2  
 Laboratory: A4 Scientific, Inc. (A4)  
 Reviewer: Calvin Tanaka, ESAT/LDC  
 Date: June 23, 2006

RELATIVE RESPONSE FACTORS (RRF)

	<u>RRF</u>	<u>RRF</u>	<u>RRF</u>
Analysis date:	8/29/05	9/7/05	9/8/05
Analysis time:	10:43-	07:50	08:13
GC/MS I.D.:	C-5973	C-5973	C-5973
<u>Analyte</u>	<u>Init.</u>	<u>Cont.</u>	<u>Cont.</u>
trans-1,3-Dichloropropene-d4	0.041	0.047	0.044

PERCENT RELATIVE STANDARD DEVIATIONS (%RSD)

	<u>%RSD</u>
Analysis Date:	8/29/05
Analysis Time:	10:43-
GC/MS I.D.:	C-5973
<u>Analyte</u>	<u>Init.</u>
Methylene chloride	39.3
trans-1,3-Dichloropropene-d4	34.3

ASSOCIATED SAMPLES AND METHOD BLANKS

Initial, 8/29/05: Y2312, Y2312DL, Y2315, Y2316, Y2317, Y2317MS, and Y2317MSD;  
 method blanks VBLK82 and VBLK83; storage blank VHBLK01

Cont., 9/7/05: Y2312, Y2312DL, Y2315, Y2316, Y2317, Y2317MS, and Y2317MSD;  
 method blank VBLK82

Cont., 9/8/05: Method blank VBLK83; storage blank VHBLK01.