



**ICF International / Laboratory Data Consultants**

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

MEMORANDUM

TO: Lynda Deschambault, Remedial Project Manager  
Site Cleanup Section 1, SFD-7-1

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

FROM: Kathy O'Brien, Data Review Task Manager  
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041  
Technical Direction Form No.: 01005035

DATE: June 14, 2012

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 QB02  |
| CERCLIS ID No.:   | CAD042245001  |
| Case No.:         | 42463   |
| SDG No.:          | Y8C26   |
| Laboratory:       | A4 Scientific Inc. (A4)                                       |
| Analysis:         | 1,4-Dioxane by Semivolatile<br>Selective Ion Monitoring (SIM) |
| Samples:          | 2 Water Samples (see Case Summary)                            |
| Collection Date:  | May 8, 2012   |
| Reviewer:         | Santiago Lee, ESAT/Laboratory Data Consultants (LDC)          |

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: Ray Flores, CLP PO USEPA Region 6  
Steve Remaley, CLP PO USEPA Region 9

CLP PO:  FYI  Action

SAMPLING ISSUES:  Yes  No



## Data Validation Report - Tier 3

Case No.: 42463  
SDG No.: Y8C26  
Site: Omega Chem OU2  
Laboratory: A4 Scientific Inc. (A4)  
Reviewer: Santiago Lee, ESAT/LDC  
Date: June 14, 2012

### I. CASE SUMMARY

#### Sample Information

Samples: Y8C26 and Y8C27  
Concentration and Matrix: Low Concentration Water  
Analysis: 1,4-Dioxane by Semivolatile SIM  
Statement of Work (SOW): SOM01.2 and Modification Reference No. 2103.2  
Collection Date: May 8, 2012  
Sample Receipt Date: May 10, 2012  
Extraction Date: May 10, 2012  
Analysis Date: May 11, 2012

#### Field QC

Field Blanks (FB): Not Provided  
Equipment Blanks (EB): Not Provided  
Background Samples (BG): Not Provided  
Field Duplicates (D1): Y8C26 and Y8C27

#### Laboratory QC

Method Blanks & Associated Samples:  
SBLK6C: Y8C26 and Y8C27

#### Tables

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

#### CLP PO Action

Nondetected and detected results for 1,4-dioxane in all samples and method blank SBLK6C are qualified as rejected (R) due to very low instrument sensitivity (see Comment A).

#### Sampling Issues

1. The traffic report and chain of custody record (TR/COC) and airbill stated that the cooler was relinquished on 05/08/12 to FedEx for priority overnight delivery but was received by the laboratory on 05/10/12. No impact on data quality is expected since the cooler temperature (4°C) was within the  $4 \pm 2^\circ\text{C}$  criterion.
2. The field duplicate was not submitted "blind" to the laboratory since "Dup" was used as part of station location on the TR/COC.

## Additional Comments

The standard/reagent preparation logbook for surrogate solution ID 939-047-12 is missing in the data package. A Communication Record Log (CRL) was sent to the laboratory requesting the information. Data quality is not likely to be affected and this report is considered final. See attached CRL for details.

Matrix spike/matrix spike duplicate (MS/MSD) analysis was not requested.

The laboratory performed manual integrations on calibrations and samples because the software failed to accurately integrate the entire peak. 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:

- *Request for Quote (RFQ) for Modified Analysis, Modification Reference Number: 2103.0, January 28, 2011;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

For technical definitions, refer to *Exhibit G (Glossary of Terms), USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005.*

## **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 Instrument Performance Check             | Yes               |                |
| 3  | Initial Calibration                            | No                | A              |
| 4  | Continuing Calibration Verification (CCV)      | No                | A              |
| 5  | Laboratory Blanks                              | No                | A              |
| 6  | Field Blanks                                   | N/A               |                |
| 7  | Deuterated Monitoring Compounds (DMCs)         | No                | A              |
| 8  | Matrix Spike/Matrix Spike Duplicates (MS/MSDs) | N/A               |                |
| 9  | GPC Performance Check                          | N/A               |                |
| 10 | Internal Standards                             | No                | A              |
| 11 | Compound Identification                        | Yes               |                |
| 12 | Compound Quantitation                          | No                | A              |
| 13 | System Performance                             | No                | A              |
| 14 | Field Duplicate Sample Analysis                | No                | B              |

N/A = Not Applicable

### III. VALIDITY AND COMMENTS

A. Nondetected and detected results for the following analyte are qualified as rejected due to very low instrument sensitivity and are flagged "R" in Table 1A.

- 1,4-Dioxane in all samples and method blank SBLK6C

Adequate sensitivity is required to detect a target analyte at low concentration (differentiate it from the sample background) and to accurately determine concentration. Low area counts were observed for the following:

- 1,4-Dioxane in the initial calibration - ranged from 500 counts for 0.50 ug/L to 4,233 counts for 8.0 ug/L.
- Internal standard 1,4-dichlorobenzene-d4 in initial calibration, CCVs, samples, and method blank varied from 171 to 308 counts for 0.40 ug/L.
- DMC 1,4-dioxane-d8 response was very low in initial calibration, CCVs, samples, and method blank., with 41 counts for the 0.50 ug/L standard analyzed on 05/11/12 12:52.

In the reviewer's professional judgment, instrument response at least 10 times greater is necessary to produce reliable and usable data.

In addition to the very low instrument response, the reviewer noted the following issues:

- (1) Standard preparation appears to be in error. According to standard preparation documentation, the concentration of 1,4-dioxane and 1,4-dioxane-d8 is 2.0 ug/L in the CAL3 and the CCVs; however, the response for 1,4-dioxane is approximately 10 times the 1,4-dioxane-d8 response. The detected results are quantitatively uncertain when there is an error in standard preparation.
- (2) The mass spectra in Qedit reports display many ions over an m/z range of 42 to 252, which indicates that the laboratory did not use SIM or used a poorly optimized SIM/scan or SIM mode (reducing instrument response).
- (3) The mass spectrum in Qedit report for method blank SBLK6C contains mass 88; however, the laboratory did not manually integrate for 1,4-dioxane in the method blank. 1,4-Dioxane was manually integrated in samples and standards. Consequently, the impact of laboratory contamination cannot be assessed (i.e., cannot determine whether the detected results in samples are due to method blank contamination).
- (4) The concentration of the internal standard (0.4 ug/L) is too low to be differentiated from the sample background noise.
- (5) Target analyte (1,4-dioxane) and DMC (1,4-dioxane-d8) are not separated from the solvent front.

Note that, due to the very low area counts for DMC 1,4-dioxane-d8, the DMC recoveries reported by the laboratory are meaningless and not usable.

- B. In the analysis of the field duplicate pair, the following outlier (relative percent difference >25%) was reported.

| <u>Analyte</u> | <u>Y8C26 (D1)<br/>Conc., µg/L</u> | <u>Y8C27 (D1)<br/>Conc., µg/L</u> | <u>RPD</u> |
|----------------|-----------------------------------|-----------------------------------|------------|
| 1,4-Dioxane    | 3.9                               | 2.2                               | 55.7       |

The effect on data quality is not known.

**TABLE 1A  
ANALYTICAL RESULTS WITH QUALIFICATIONS**

| Sample Location<br>Type<br>Matrix/Level<br>Dilution Factor<br>% Moisture<br>Units | Y8C26 D1<br>170<br>Field_Sample<br>Water/Low<br>1.0<br>ug/L |        |      | Y8C27 D1<br>170 Dup<br>Field_Sample<br>Water/Low<br>1.0<br>ug/L |        |      | SBLK6C<br>Method_Blank<br>Water/Low<br>1.0<br>0<br>ug/L |        |      |     |        |      |
|---|---|--------|------|---|--------|------|---|--------|------|-----|--------|------|
|   | Compound  | Result | Flag | Com   | Result | Flag | Com   | Result | Flag | Com | Result | Flag |
| 1,4-Dioxane   | 3.9   | R      | A,B  | 2.2   | R      | A,B  | 0.50  | R      | A    |     |        |      |

Com - Comments. Refer to the corresponding section in the Narrative for each letter.

D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

## 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 Superfund Organic Methods Data Review," June 2008.

- U The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.
- J The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).
- 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 at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
- R The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.



**Fw: CRL - 42463, Y8C26, 1,4-Dioxane - A4 Scientific**  
**Santiago Lee** to: pakanati, laxmi  
 Cc: Steve Remaley, Rose Fong, Kathleen OBrien

06/11/2012 03:40 PM

From: Santiago Lee/R9/USEPA/US  
 To: pakanati@a4scientific.com, laxmi@a4scientific.com  
 Cc: Steve Remaley/R9/USEPA/US@EPA, Rose Fong/R9/USEPA/US@EPA, Kathleen OBrien/R9/USEPA/US@EPA

----- Forwarded by Santiago Lee/R9/USEPA/US on 06/11/2012 03:39 PM -----

From: Steve Remaley/R9/USEPA/US  
 To: Santiago Lee/R9/USEPA/US@EPA  
 Cc: Rose Fong/R9/USEPA/US@EPA, Kathleen OBrien/R9/USEPA/US@EPA  
 Date: 06/11/2012 03:13 PM  
 Subject: Re: CRL - 42463, Y8C26, 1,4-Dioxane - A4 Scientific

Hi Santiago, OK to send.

Steve  
 Stephen Remaley  
 Chemist/Region 9 CLP Project Officer/ATP Coordinator  
 QA Office, U.S. EPA Region 9 (Pacific Southwest)  
 415.972.3802

-----Santiago Lee/R9/USEPA/US@EPA wrote: -----

=====

To: Steve Remaley/R9/USEPA/US@EPA  
 From: Santiago Lee/R9/USEPA/US@EPA  
 Date: 06/11/2012 10:37AM  
 Cc: Rose Fong/R9/USEPA/US@EPA, Kathleen OBrien/R9/USEPA/US@EPA  
 Subject: CRL - 42463, Y8C26, 1,4-Dioxane - A4 Scientific

=====

Hi, Steve,  
 Please review. Thanks.

Contract Laboratory Program  
 REGIONAL/LABORATORY COMMUNICATION SYSTEM  
 Communication Record Log

Laboratory Name: A4 Scientific, Inc.  
 Lab Contact: Laxmi Teerupalli  
 Region: 9  
 Regional Contact: Steve Remaley, CLP PO  
 ESAT Reviewer: Santiago Lee, ESAT/LDC  
 Call Initiated By: Laboratory X Region  
 In Reference to data for Case No. 42463, SDG No. Y8C26, 1,4-Dioxane by SV.

Summary of Questions/issues Discussed:

The following items were noted during the review of this sample delivery group (SDG) data package. Please respond within 7 days as specified in SOM01.1 Statement of Work (SOW), Exhibit B, Section 2.2.2.

Send responses and resubmissions to:

ICF International/Laboratory Data Consultants, Inc.,  
 Environmental Services Assistance Team, USEPA Region 9 Laboratory  
 1337 S. 46th Street, Building 201, Richmond, CA 94804; FAX 510 412-2304;  
 Santiago Lee/R9/USEPA/US.  
 Attention: Santiago Lee/LDC

1. The request for quote for modification reference number 2103.0 is missing from the data package. Please submit.

2. The reagent preparation logbook for surrogate solution ID 939-047-12 is missing from the data package. Please submit the missing page.



**ICF International / Laboratory Data Consultants**

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

MEMORANDUM

TO: Lynda Deschambault, Remedial Project Manager  
Site Cleanup Section 1, SFD-7-1

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

FROM: Kathy O'Brien, Data Review Task Manager  
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041  
Technical Direction Form No.: 01005035

DATE: June 14, 2012

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 QB02  |
| CERCLIS ID No.:   | CAD042245001  |
| Case No.:         | 42463   |
| SDG No.:          | Y8C26   |
| Laboratory:       | A4 Scientific Inc. (A4)   |
| Analysis:         | 1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by<br>Volatile Selective Ion Monitoring (SIM) |
| Samples:          | 2 Water Samples (see Case Summary)  |
| Collection Date:  | May 8, 2012   |
| Reviewer:         | Santiago Lee, ESAT/Laboratory Data Consultants (LDC)  |

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: Ray Flores, CLP PO USEPA Region 6  
Steve Remaley, CLP PO USEPA Region 9

CLP PO:  FYI  Action

SAMPLING ISSUES:  Yes  No



## Data Validation Report - Tier 3

Case No.: 42463  
SDG No.: Y8C26  
Site: Omega Chem OU2  
Laboratory: A4 Scientific Inc. (A4)  
Reviewer: Santiago Lee, ESAT/LDC  
Date: June 14, 2012

### I. CASE SUMMARY

#### Sample Information

Samples: Y8C26 and Y8C27  
Concentration and Matrix: Low Concentration Water  
Analysis: 1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane  
by Volatile Selective Ion Monitoring (SIM)  
Statement of Work (SOW): SOM01.2  
Collection Date: May 8, 2012  
Sample Receipt Date: May 10, 2012  
Extraction Date: Not Applicable  
Analysis Date: May 11, 2012

#### Field QC

Field Blanks (FB): Not Provided  
Equipment Blanks (EB): Not Provided  
Trip Blanks (TB): Not Provided  
Background Samples (BG): Not Provided  
Field Duplicates (D1): Y8C26 and Y8C27

#### Laboratory QC

Method Blanks & Associated Samples:  
VBLK37: Y8C26 and Y8C27  
VBLK38: Storage blank VHBLKQH

#### Tables

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

#### CLP PO Action

The quantitation limit of 1,2-dibromo-3-chloropropane for all samples, all method blanks, and storage blank VHBLKQH is elevated to 0.50 ug/L due to instrument sensitivity problems (see comment A).

#### Sampling Issues

1. The traffic report and chain of custody record (TR/COC) and airbill stated that the cooler was relinquished on 05/08/12 to FedEx for priority overnight delivery but was received by the laboratory on 05/10/12. No impact on data quality is expected since the cooler temperature (4°C) was within the 4±2°C criterion.

2. The field duplicate was not submitted “blind” to the laboratory since “Dup” was used as part of station location on the TR/COC.

Additional Comments

The quantitation report for VHBLKQH, instrument run log, and standard/reagent preparation logbook are missing in the data package. A Communication Record Log (CRL) was sent to the laboratory requesting the information. Data quality is not likely to be affected and this report is considered final. See attached CRL for details.

Matrix spike/matrix spike duplicate (MS/MSD) analysis was not requested.

The laboratory performed manual integrations on calibrations because the software failed to accurately integrate the entire peak. 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:

- USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;
- Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.

For technical definitions, refer to *Exhibit G (Glossary of Terms)*, USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005.

**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 Instrument Performance Check             | N/A               |                |
| 3  | Initial Calibration                            | No                | A              |
| 4  | Continuing Calibration Verification (CCV)      | No                | A              |
| 5  | Laboratory Blanks                              | Yes               |                |
| 6  | Field Blanks                                   | N/A               |                |
| 7  | Deuterated Monitoring Compounds (DMCs)         | Yes               |                |
| 8  | Matrix Spike/Matrix Spike Duplicates (MS/MSDs) | N/A               |                |
| 9  | Internal Standards                             | No                | A              |
| 10 | Compound Identification                        | Yes               |                |
| 11 | Compound Quantitation/CRQL                     | No                | A              |
| 12 | System Performance                             | No                | A              |
| 13 | Field Duplicate Sample Analysis                | Yes               |                |

N/A = Not Applicable

### III. VALIDITY AND COMMENTS

- A. The quantitation limit of 1,2-dibromo-3-chloropropane for samples Y8C26 and Y8C27, method blanks VBLK37 and VBLK38, and storage blank VHBLKQH is elevated to 0.50 ug/L due to instrument sensitivity problems.

The area counts for 1,2-dibromo-3-chloropropane in the initial calibration (0.020 ug/L - 2.0 ug/L) were very low:

- 20 counts for the 0.020 ug/L standard (2E07003-CAL1) analyzed on 05/07/12; less than 2 times the baseline noise level (see attached Qedit report).
- 126 counts for the 0.10 ug/L standard (2E07003-CAL2; see attached quantitation report).

Additionally, area counts for the 0.50 ug/L standard decreased throughout the analytical sequence:

- 822 counts in the initial calibration (2E07003-CAL3) analyzed on 05/07/12.
- 243 counts in the closing CCV VSTD0.5039 analyzed on 05/12/12 01:14.

The decreasing sensitivity is mirrored in the internal standard (IS) area counts, indicating an overall decline in instrument performance. 1,4-Dichlorobenzene-d4 responses were:

- 10,063 counts in the midpoint of the ICAL analyzed on 05/07/12;
- 9,639 counts for the opening CCV analyzed on 05/11/12 10:09;
- 5,562 counts for the CCV analyzed on 05/11/12 18:09; and
- 5,089 counts for the closing CCV analyzed on 05/12/12 01:14.

Therefore, in the reviewer's professional judgment, the quantitation limit of 0.050 ug/L reported by the laboratory for 1,2-dibromo-3-chloropropane is not reliable; the quantitation limit has been elevated to 0.50 ug/L in Table 1A.

In addition, the mass spectra in Qedit report display many ions over an m/z range of 75 to 188, which indicates that the laboratory used a poorly optimized SIM/scan or SIM mode (reducing instrument response; see attached Qedit report).

**TABLE 1A  
ANALYTICAL RESULTS WITH QUALIFICATIONS**

| Sample Location<br>Type<br>Matrix/Level<br>Dilution Factor<br>% Moisture<br>Units | Y8C26 D1<br>170<br>Field_Sample<br>Water/Trace<br>1.0<br>ug/L |        |      | Y8C27 D1<br>170 Dup<br>Field_Sample<br>Water/Trace<br>1.0<br>ug/L |        |      | VBLK37<br>Method_Blank<br>Water/Trace<br>1.0<br>ug/L |        |      | VBLK38<br>Method_Blank<br>Water/Trace<br>1.0<br>ug/L |        |      |
|---|---|--------|------|---|--------|------|--|--------|------|--|--------|------|
|   | Compound  | Result | Flag | Com   | Result | Flag | Com  | Result | Flag | Com  | Result | Flag |
| 1,2-Dibromoethane   | 0.050   | U      |      | 0.050   | U      |      | 0.050  | U      |      | 0.050  | U      |      |
| 1,2-Dibromo-3-chloropropane   | 0.50  | U      | A    | 0.50  | U      | A    | 0.50   | U      | A    | 0.50   | U      | A    |

| Sample Location<br>Type<br>Matrix/Level<br>Dilution Factor<br>% Moisture<br>Units | VHBLKQH<br>Storage_Blank<br>Water/Trace<br>1.0<br>ug/L |        |      |     |        |      |     |        |      |     |        |      |
|---|--|--------|------|-----|--------|------|-----|--------|------|-----|--------|------|
|   | Compound   | Result | Flag | Com | Result | Flag | Com | Result | Flag | Com | Result | Flag |
| 1,2-Dibromoethane   | 0.050  | U      |      |     |        |      |     |        |      |     |        |      |
| 1,2-Dibromo-3-chloropropane   | 0.50   | U      | A    |     |        |      |     |        |      |     |        |      |

Com - Comments. Refer to the corresponding section in the Narrative for each letter.  
 D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

## 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 Superfund Organic Methods Data Review," June 2008.

- U The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.
- J The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).
- 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 at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
- R The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

Fw: Re: CRL - 42463, Y8C26, VOA-SIM - A4 Scientific  
Santiago Lee

to:

pakanati, laxmi

06/07/2012 08:41 PM

Cc:

Steve Remaley, Rose Fong, Kathleen OBrien

Hide Details

From: Santiago Lee/R9/USEPA/US

To: pakanati@a4scientific.com, laxmi@a4scientific.com

Cc: Steve Remaley/R9/USEPA/US@EPA, Rose Fong/R9/USEPA/US@EPA, Kathleen  
OBrien/R9/USEPA/US@EPA

Security:

To ensure privacy, images from remote sites were prevented from downloading. Show Images

-----Forwarded by Santiago Lee/R9/USEPA/US on 06/07/2012 08:40PM -----

To: Santiago Lee/R9/USEPA/US@EPA

From: Steve Remaley/R9/USEPA/US

Date: 06/07/2012 01:48PM

Cc: Rose Fong/R9/USEPA/US@EPA, Kathleen OBrien/R9/USEPA/US@EPA

Subject: Re: CRL - 42463, Y8C26, VOA-SIM - A4 Scientific

OK to send.

Steve

Stephen Remaley

Chemist/Region 9 CLP Project Officer/ATP Coordinator

QA Office, U.S. EPA Region 9 (Pacific Southwest)

415.972.3802

Santiago Lee---06/07/2012 01:44:34 PM---Hi, Steve, Please review. Thanks.

From: Santiago Lee/R9/USEPA/US

To: Steve Remaley/R9/USEPA/US@EPA

Cc: Rose Fong/R9/USEPA/US@EPA, Kathleen OBrien/R9/USEPA/US@EPA

Date: 06/07/2012 01:44 PM

Subject: CRL - 42463, Y8C26, VOA-SIM - A4 Scientific

---

Hi, Steve,

Please review. Thanks.

Contract Laboratory Program  
REGIONAL/LABORATORY COMMUNICATION SYSTEM  
Communication Record Log

Laboratory Name: A4 Scientific, Inc.  
Lab Contact: Laxmi Teerupalli  
Region: 9  
Regional Contact: Steve Remaley, CLP PO  
ESAT Reviewer: Santiago Lee, ESAT/LDC  
Call Initiated By:            Laboratory X Region  
In Reference to data for Case No. 42463, SDG No. Y8C26, EDB & DBCP by VOA-SIM.

Summary of Questions/issues Discussed:

The following items were noted during the review of this sample delivery group (SDG) data package. Please respond within 7 days as specified in SOM01.1 Statement of Work (SOW), Exhibit B, Section 2.2.2.

**Send responses and resubmissions to:**

ICF International/Laboratory Data Consultants, Inc.,  
Environmental Services Assistance Team, USEPA Region 9 Laboratory  
1337 S. 46th Street, Building 201, Richmond, CA 94804; FAX 510 412-2304; Santiago  
Lee/R9/USEPA/US.

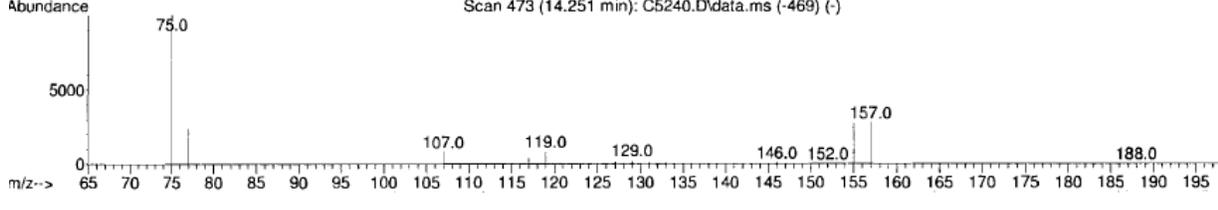
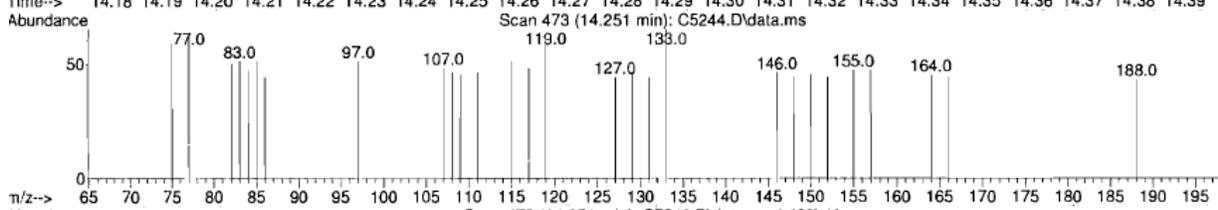
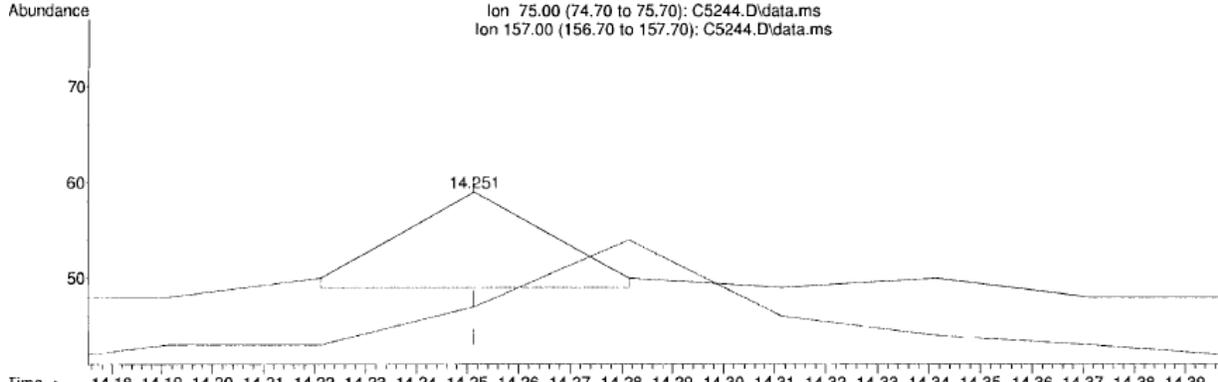
**Attention: Santiago Lee/LDC**

1. For Form II, 1,2-dichloroethane-d4 recovery for Y8C26 (83%) and 1,1,2,2-tetrachloroethane-d2 recoveries for Y8C26 (87%) and VBLK37 (81%) are not the same as the recoveries reported in quantitation reports (84%, 86%, and 80%, respectively; see pages 217 and 264). Which recoveries are correct? Please submit revised data (Form II or quantitation reports) as needed.
2. The quantitation report for VHBLKQH is missing from the data package; page 260 is an area percent report. Please submit the missing quantitation report.
3. The instrument run log and standard/reagent preparation logbook for VOA-SIM are missing from the data package. Please submit the missing pages.

Quantitation Report (Qedit)

Data File : C:\msdchem\1\data\C5244.D Vial: 5  
 Acq On : 7 May 2012 12:54 Operator: SP  
 Sample : 2E07003-CAL1 Inst : C-5973  
 Misc : VSTD0.02025 25ML Multiplr: 1.00  
 DataAcq Meth:SOMSIM.M

Quant Time: May 07 13:24:17 2012  
 Quant Results File: SIMC5240.RES  
 Integration File: RTEINT.P  
 Quant Method : C:\msdchem\1\methods\SIMC5240.M  
 Quant Title : CLP SOM1.2 TV-SIM WATER-MA-1543.2  
 QLast Update : Mon May 07 13:23:57 2012  
 Response via : Initial Calibration



TIC: C5244.D\data.ms

(7) 1,2-Dibromo-3-chloropropane (CP)

14.251min (+ 0.000) 0.02 ug/L m

response 20

*S.P. AC*

| Ion    | Exp%   | Act%   |
|--------|--------|--------|
| 75.00  | 100.00 | 100.00 |
| 157.00 | 107.70 | 0.00#  |
| 0.00   | 0.00   | 0.00   |
| 0.00   | 0.00   | 0.00   |

Quantitation Report (QT Reviewed)

Data File : C:\msdchem\1\data\C5243.D  
 Acq On : 7 May 2012 12:27  
 Sample : 2E07003-CAL2  
 Misc : VSTD0.1025 25ML  
 DataAcq Meth:SOMSIM.M

Vial: 4  
 Operator: SP  
 Inst : C-5973  
 Multiplr: 1.00

  
 05/11/12

Quant Time: May 07 13:23:46 2012  
 Quant Results File: SIMC5240.RES  
 Integration File: RTEINT.P  
 Quant Method : C:\msdchem\1\methods\SIMC5240.M  
 Quant Title : CLP SOM1.2 TV-SIM WATER-MA-1543.2  
 QLast Update : Mon May 07 13:23:42 2012  
 Response via : Initial Calibration

  
 05/11/12

| Compound                     | R.T.   | QIon           | Response | Conc   | Units   | Dev(Min) |
|------------------------------|--------|----------------|----------|--------|---------|----------|
| Internal Standards           |        |                |          |        |         |          |
| 1) 1,4-Difluorobenzene       | 6.382  | 114            | 20726    | 0.5000 | ug/L    | 0.00     |
| 3) Chlorobenzene-d5          | 10.382 | 117            | 16600    | 0.5000 | ug/L    | 0.00     |
| 6) 1,4-Dichlorobenzene-d4    | 13.231 | 152            | 6914     | 0.5000 | ug/L    | 0.00     |
| System Monitoring Compounds  |        |                |          |        |         |          |
| 2) 1,2-Dichloroethane-d4     | 5.881  | 65             | 1683     | 0.09   | ug/L    | 0.00     |
| Spiked Amount                | 0.500  | Range 78 - 129 | Recovery | =      | 18.00%# |          |
| 5) 1,1,2,2-Tetrachloroeth... | 12.122 | 84             | 912      | 0.11   | ug/L    | 0.00     |
| Spiked Amount                | 0.500  | Range 73 - 125 | Recovery | =      | 22.00%# |          |
| Target Compounds             |        |                |          |        |         |          |
| 4) 1,2-Dibromoethane         | 9.662  | 107            | 1107     | 0.0948 | ug/L #  | 82       |
| 7) 1,2-Dibromo-3-chloropr... | 14.251 | 75             | 126      | 0.1306 | ug/L #  | 80       |

(#) = qualifier out of range (m) = manual integration (+) = signals summed



**ICF International / Laboratory Data Consultants**

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

MEMORANDUM

TO: Lynda Deschambault, Remedial Project Manager  
Site Cleanup Section 1, SFD-7-1

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

FROM: Kathy O'Brien, Data Review Task Manager  
Region 9 Environmental Services Assistance Team (ESAT)

ESAT Contract No.: EP-W-06-041  
Technical Direction Form No.: 01005035

DATE: June 18, 2012

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 QB02   |
| CERCLIS ID No.:   | CAD042245001   |
| Case No.:         | 42463  |
| SDG No.:          | Y8C26  |
| Laboratory:       | A4 Scientific Inc. (A4)                              |
| Analysis:         | Trace-Level Volatiles                                |
| Samples:          | 2 Water Samples (see Case Summary)                   |
| Collection Date:  | May 8, 2012  |
| Reviewer:         | Santiago Lee, ESAT/Laboratory Data Consultants (LDC) |

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: Ray Flores, CLP PO USEPA Region 6  
Steve Remaley, CLP PO USEPA Region 9

CLP PO:  FYI  Action

SAMPLING ISSUES:  Yes  No



## Data Validation Report - Tier 3

Case No.: 42463  
SDG No.: Y8C26  
Site: Omega Chem OU2  
Laboratory: A4 Scientific Inc. (A4)  
Reviewer: Santiago Lee, ESAT/LDC  
Date: June 18, 2012

### I. CASE SUMMARY

#### Sample Information

Samples: Y8C26 and Y8C27  
Concentration and Matrix: Low Concentration Water  
Analysis: Trace-Level Volatiles  
Statement of Work (SOW): SOM01.2  
Collection Date: May 8, 2012  
Sample Receipt Date: May 10, 2012  
Extraction Date: Not Applicable  
Analysis Date: May 11, 2012

#### Field QC

Field Blanks (FB): Not Provided  
Equipment Blanks (EB): Not Provided  
Trip Blanks (TB): Not Provided  
Background Samples (BG): Not Provided  
Field Duplicates (D1): Y8C26 and Y8C27

#### Laboratory QC

Method Blanks & Associated Samples:  
VBLK4L: Y8C26, Y8C27, Y8C26DL, Y8C27DL; storage blank  
VHBLKQG

#### Tables

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

#### CLP PO Action

None.

#### Sampling Issues

1. The traffic report and chain of custody record (TR/COC) and airbill stated that the cooler was relinquished on 05/08/12 to FedEx for priority overnight delivery but was received by the laboratory on 05/10/12. No impact on data quality is expected since the cooler temperature (4°C) was within the 4±2°C criterion.
2. The field duplicate was not submitted “blind” to the laboratory since “Dup” was used as part of station location on the TR/COC.

## Additional Comments

1,2-Dichloropropane present in samples Y8C26 and Y8C27 was not reported initially (i.e., false negatives). The laboratory submitted revised Form Is, revised quantitation reports, revised chromatograms, and mass spectra upon request, on 06/14/12 (see Table 1A for concentrations).

No sample was designated for “laboratory QC” on the TR/COC and extra sample volume for matrix spike/matrix spike duplicate (MS/MSD) analysis was not provided to the laboratory. As instructed by Region 9, MS/MSD analysis was not performed.

Other than a laboratory artifact (approximate retention time of 6.8 minutes), tentatively identified compounds (TICs) were not found in samples Y8C26 and Y8C27.

The laboratory performed manual integration on calibrations and samples because the software failed to accurately integrate the entire peak. 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:

- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

For technical definitions, refer to *Exhibit G (Glossary of Terms), USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005.*

## **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 Instrument Performance Check             | Yes               |                |
| 3  | Initial Calibration                            | Yes               |                |
| 4  | Continuing Calibration Verification (CCV)      | Yes               |                |
| 5  | Laboratory Blanks                              | Yes               |                |
| 6  | Field Blanks                                   | N/A               |                |
| 7  | Deuterated Monitoring Compounds (DMCs)         | No                | B              |
| 8  | Matrix Spike/Matrix Spike Duplicates (MS/MSDs) | N/A               |                |
| 9  | Internal Standards                             | Yes               |                |
| 10 | Compound Identification                        | Yes               |                |
| 11 | Compound Quantitation                          | Yes               | A, C           |
| 12 | System Performance                             | Yes               |                |
| 13 | Field Duplicate Sample Analysis                | Yes               |                |

N/A = Not Applicable

### III. VALIDITY AND COMMENTS

A. The following results are estimated and flagged “J” in Table 1A.

- All detected results below the contract required quantitation limits (CRQL).

The results are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision below the quantitation limit.

B. Results for the following analytes are qualified as estimated due to DMC recoveries outside QC limits and are flagged “J” or “UJ” in Table 1A.

{1,1-Dichloroethene-d2}

- 1,1-Dichloroethene and cis-1,2-dichloroethene in samples Y8C26 and Y8C27

{1,2-Dichloroethane-d4}

- Trichlorofluoromethane, 1,1,2-trichloro-1,2,2-trifluoroethane, methyl acetate, methylene chloride, methyl tert-butyl ether, 1,1,1-trichloroethane, carbon tetrachloride, 1,2-dichloroethane, and 1,2-dibromoethane in sample Y8C26

{1,1,2,2-Tetrachloroethane-d2}

- 1,1,2,2-Tetrachloroethane and 1,2-dibromo-3-chloropropane in sample Y8C26

DMC recoveries outside QC limits are shown below.

| <u>Sample</u> | <u>DMC</u>                   | <u>% Recovery</u> | <u>QC Limits, %</u> |
|---------------|------------------------------|-------------------|---------------------|
| Y8C27         | Vinyl Chloride-d3            | 140               | 65-131              |
| Y8C27         | Chloroethane-d5              | 164               | 71-131              |
| Y8C26         | 1,1-Dichloroethene-d2        | 118               | 55-104              |
| Y8C27         | 1,1-Dichloroethene-d2        | 126               | 55-104              |
| Y8C26         | 1,2-Dichloroethane-d4        | 76                | 78-129              |
| Y8C26         | 1,1,2,2-Tetrachloroethane-d2 | 67                | 73-125              |

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. Samples Y8C26 and Y8C27 were not reanalyzed undiluted.

Recoveries for DMCs vinyl chloride-d5 and chloroethane-d5 in Y8C27 exceeded QC limits, indicating high bias in detected results; associated sample results were not qualified because they were nondetects.

C. Samples Y8C26 and Y8C27 were reanalyzed at 2-fold dilutions due to high levels of trichloroethene and tetrachloroethene that exceeded the calibration range. Results

for these analytes in samples Y8C26 and Y8C27 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Lab A4 (A4 Scientific Inc.)

SDG Y8C26

Case 42463

Site Omega Chem OU2

SOW SOM01.2

| Sample Location Type Matrix/Level Dilution Factor % Moisture Units | Y8C26 D1 170 Field_Sample Water/Trace 1.0 ug/L |        |      | Y8C27 D1 170 Dup Field_Sample Water/Trace 1.0 ug/L |        |      | VBLK4L Method_Blank Water/Trace 1.0 ug/L |        |      | VHBLKQG Storage_Blank Water/Trace 1.0 ug/L |        |      |     |
|--|--|--------|------|--|--------|------|--|--------|------|--|--------|------|-----|
|  | D1   | Result | Flag | Com  | Result | Flag | Com                                      | Result | Flag | Com  | Result | Flag | Com |
| Dichlorodifluoromethane  | 0.50   | U      |      | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Chloromethane  | 0.50   | U      |      | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Vinyl chloride   | 0.50   | U      |      | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Bromomethane   | 0.50   | U      |      | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Chloroethane   | 0.50   | U      |      | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Trichlorofluoromethane   | 2.2  | J      | B    | 2.4  |        |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| 1,1-Dichloroethene   | 7.2  | J      | B    | 7.0  | J      | B    | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| 1,1,2-Trichloro-1,2,2-trifluoroethane                              | 4.4  | J      | B    | 5.5  |        |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Acetone  | 5.0  | U      |      | 5.0  | U      |      | 5.0                                      | U      |      | 5.0  | U      |      |     |
| Carbon disulfide   | 0.50   | U      |      | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Methyl acetate   | 0.50   | UJ     | B    | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Methylene chloride   | 0.50   | UJ     | B    | 0.50   | U      |      | 0.46                                     | J      | A    | 0.27                                       | J      | A    |     |
| trans-1,2-Dichloroethene   | 0.50   | U      |      | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Methyl tert-butyl ether  | 0.50   | UJ     | B    | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| 1,1-Dichloroethane   | 1.8  |        |      | 1.8  |        |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| cis-1,2-Dichloroethene   | 2.3  | J      | B    | 2.2  | J      | B    | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| 2-Butanone   | 5.0  | U      |      | 5.0  | U      |      | 5.0                                      | U      |      | 5.0  | U      |      |     |
| Bromochloromethane   | 0.50   | U      |      | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Chloroform   | 0.71   |        |      | 0.70   |        |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| 1,1,1-Trichloroethane  | 0.50   | UJ     | B    | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Cyclohexane  | 0.50   | U      |      | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Carbon tetrachloride   | 0.50   | UJ     | B    | 0.50   | U      |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| Benzene  | 0.90   |        |      | 0.87   |        |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |
| 1,2-Dichloroethane   | 0.80   | J      | B    | 0.83   |        |      | 0.50                                     | U      |      | 0.50                                       | U      |      |     |

Lab A4 (A4 Scientific Inc.)

SDG Y8C26

Case 42463

Site Omega Chem OU2

SOW SOM01.2

| Sample Location<br>Type<br>Matrix/Level<br>Dilution Factor<br>% Moisture<br>Units | Y8C26 D1<br>170<br>Field_Sample<br>Water/Trace<br>1.0<br>ug/L |        |      | Y8C27 D1<br>170 Dup<br>Field_Sample<br>Water/Trace<br>1.0<br>ug/L |        |      | VBLK4L<br>Method_Blank<br>Water/Trace<br>1.0<br>ug/L |        |      | VHBLKQG<br>Storage_Blank<br>Water/Trace<br>1.0<br>ug/L |        |      |     |  |
|---|---|--------|------|---|--------|------|--|--------|------|--|--------|------|-----|--|
|   | Compound  | Result | Flag | Com   | Result | Flag | Com  | Result | Flag | Com  | Result | Flag | Com |  |
| Trichloroethene   | 18  |        |      | C   | 19     |      |  | C      | 0.50 | U  |        | 0.50 | U   |  |
| Methylcyclohexane   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,2-Dichloropropane   | 0.67  |        |      |   | 0.70   |      |  |        | 0.50 | U  |        | 0.50 | U   |  |
| Bromodichloromethane  | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| cis-1,3-Dichloropropene   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 4-Methyl-2-pentanone  | 5.0   | U      |      |   | 5.0    | U    |  |        | 5.0  | U  |        | 5.0  | U   |  |
| Toluene   | 15  |        |      |   | 15     |      |  |        | 0.50 | U  |        | 0.50 | U   |  |
| trans-1,3-Dichloropropene   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,1,2-Trichloroethane   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| Tetrachloroethene   | 20  |        |      | C   | 21     |      |  | C      | 0.50 | U  |        | 0.50 | U   |  |
| 2-Hexanone  | 5.0   | U      |      |   | 5.0    | U    |  |        | 5.0  | U  |        | 5.0  | U   |  |
| Dibromochloromethane  | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,2-Dibromoethane   | 0.50  | UJ     |      | B   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| Chlorobenzene   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| Ethylbenzene  | 0.24  | J      |      | A   | 0.21   | J    |  | A      | 0.50 | U  |        | 0.50 | U   |  |
| o-Xylene  | 0.58  |        |      |   | 0.53   |      |  |        | 0.50 | U  |        | 0.50 | U   |  |
| m,p-Xylene  | 0.69  |        |      |   | 0.61   |      |  |        | 0.50 | U  |        | 0.50 | U   |  |
| Styrene   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| Bromoform   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| Isopropylbenzene  | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,1,2,2-Tetrachloroethane   | 0.50  | UJ     |      | B   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,3-Dichlorobenzene   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,4-Dichlorobenzene   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,2-Dichlorobenzene   | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,2-Dibromo-3-chloropropane   | 0.50  | UJ     |      | B   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,2,4-Trichlorobenzene  | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |
| 1,2,3-Trichlorobenzene  | 0.50  | U      |      |   | 0.50   | U    |  |        | 0.50 | U  |        | 0.50 | U   |  |

Com - Comments. Refer to the corresponding section in the Narrative for each letter.

D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, TB - Trip Blank, BG - Background Sample.

## 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 Superfund Organic Methods Data Review," June 2008.

- U The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.
- J The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).
- 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 at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.
- R The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.