LABORATORY DATA CONSULTANTS, INC.
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ERM
2525 Natomas Park Drive, Suite 350
Sacramento, CA 95833
ATTN: Ms. Maria Barajas-Albalawi

October 30, 2007

SUBJECT: BRC Parcel 4A/4B Sampling Event, Data Validation

Dear Ms. Barajas-Albalawi

Enclosed are the revised data validation report for the fraction listed below. Please replace the previously submitted report with the enclosed revised reports.

SDG#	LDC#	Fraction
F7I100142	17590C1	Volatiles
F7I060284	17590A21	Dioxins/Dibenzofurans
F7I100142	17590C21	Dioxins/Dibenzofurans
F7I110258	17590D21	Dioxins/Dibenzofurans

Please feel free to contact us if you have any questions.

Sincerely,

ERauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Parcel 4A/4B Sampling Event

Collection Date: September 7, 2007

LDC Report Date: October 29, 2007

Matrix: Soil/Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I100142

RINSATE 2
TRIP BLANK(002)
TRIP BLANK(003)
TRIP BLANK(004)
TRIP BLANK(005)
TRIP BLANK(006)
TRIP BLANK(007)
TRIP BLANK(008)
TRIP BLANK(009)
TSB-AR-06-0'
TSB-AR-06-0'-Dup
TSB-AR-06-10'
TSB-AJ-01-0'**
TSB-AJ-01-10'**
TSB-AJ-02-0'**
TSB-AJ-02-0'-Dup**
TSB-AJ-02-10'**
TSB-AJ-03-0'**
TSB-AJ-03-10'**
TSB-BJ-06-0'**
TSB-BJ-06-10'**
TSB-BJ-01-0'**
TSB-BJ-01-10'
TSB-BJ-01-10'RE
TSB-BJ-02-0'**
TSB-BJ-02-10'**
TSB-BR-06-0'**
TSB-BR-06-10'**
TSB-AJ-01-10'MS
TSB-AJ-01-10'MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 21 soil samples and 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Analysis	Required Holding Time (in Days) From Sample Collection Until Analysis	Flag	A or P
TSB-BJ-01-10'RE	All TCL compounds	19	14	J- (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r^2) were greater than or equal to 0.990 .

For the purposes of technical evaluation, all compounds were evaluated against the 30.0% (%RSD) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/12/07	Acetonitrile	0.02504 (≥0.05)	All soil samples in SDG F7I100142	J (all detects) UJ (all non-detects)	A

*Indicates change as the result of report review.

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
8/9/07	Ethanol	0.00236 (≥0.05)	All soil samples in SDG F7I100142	J (all detects) UJ (all non-detects)	A
9/5/07	1,2-Dibromo-3-chloropropane	0.04952 (≥0.05)	All water samples in SDG F7I100142	J (all detects) UJ (all non-detects)	A
9/17/07	Ethanol	0.00640 (≥0.05)	All water samples in SDG F7I100142	J (all detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

For the purposes of technical evaluation, all compounds were evaluated against the 25.0% (%D) National Functional Guideline criteria. Unless noted above, all compounds were within the validation criteria with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
9/17/07 (FCAL6596)	Bromomethane Isopropylbenzene n-Butylbenzene	40.02851 27.92578 25.11695	TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10' TSB-AJ-01-0'** 7261455MB	J+ (all detects) J+ (all detects) J+ (all detects)	A
9/17/07 (FCAL6595)	Ethanol 2,4-Dimethylpentane 2-Methylhexane 2,3-Dimethylpentane 3-Ethylpentane 1,3,5-Trichlorobenzene	33.03521 30.95342 27.35427 32.85444 26.97152 34.30185	TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10' TSB-AJ-01-0'** 7261455MB	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A

*Indicates change as the result of report review.

Date	Compound	%D	Associated Samples	Flag	A or P
9/19/07 (FCAL6679)	Bromomethane	25.67691	TSB-AJ-01-10'** TSB-AJ-02-0'** TSB-AJ-02-0'-Dup** TSB-AJ-02-10'** TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'** TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'** TSB-AJ-01-10'MS TSB-AJ-01-10'MSD 7263176MB	J+ (all detects)	A
9/19/07 (FCAL6677)	2,4-Dimethylpentane 3,3-Dimethylpentane 2-Methylhexane 2,3-Dimethylpentane 3-Methylhexane 3-Ethylpentane n-Heptane 1,3,5-Trichlorobenzene	34.80930 26.27782 34.56763 35.92803 30.87411 31.96103 31.12890 36.09992	TSB-AJ-01-10'** TSB-AJ-02-0'** TSB-AJ-02-0'-Dup** TSB-AJ-02-10'** TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'** TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'** TSB-AJ-01-10'MS TSB-AJ-01-10'MSD 7263176MB	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A
9/26/07 (FCAL6868)	Bromomethane	33.18003	TSB-BJ-01-10'RE 7270145MB	J+ (all detects)	A
9/26/07 (FCAL6869)	Ethanol 2,2-Dimethylpentane 2,4-Dimethylpentane 2,2,3-Trimethylbutane 3,3-Dimethylpentane 2-Methylhexane 2,3-Dimethylpentane 3-Methylhexane 3-Ethylpentane n-Heptane 1,3,5-Trichlorobenzene	28.17525 38.12606 52.78176 38.94309 42.44628 52.27788 55.60273 49.63469 48.50320 46.15422 36.72640	TSB-BJ-01-10'RE 7270145MB	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A
9/17/07 (LCAL5900)	Bromomethane Carbon disulfide	67.52117 36.67244	All water samples in SDG F7I100142	J+ (all detects) J+ (all detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

*Indicates change as the result of report review.

All of the continuing calibration RRF values were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/17/07 (FCAL6596)	Acetonitrile	0.02645 (≥0.05)	TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10' TSB-AJ-01-0'** 7261455MB	J (all detects) UJ (all non-detects)	A
9/17/07 (FCAL6595)	Ethanol	0.00314 (≥0.05)	TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10' TSB-AJ-01-0'** 7261455MB	J (all detects) UJ (all non-detects)	A
9/19/07 (FCAL6679)	Acetonitrile	0.02405 (≥0.05)	TSB-AJ-01-10'** TSB-AJ-02-0'** TSB-AJ-02-0'-Dup** TSB-AJ-02-10'** TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'** TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'** TSB-AJ-01-10'MS TSB-AJ-01-10'MSD 7263176MB	J (all detects) UJ (all non-detects)	A
9/19/07 (FCAL6677)	Ethanol	0.00275 (≥0.05)	TSB-AJ-01-10'** TSB-AJ-02-0'** TSB-AJ-02-0'-Dup** TSB-AJ-02-10'** TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'** TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'** TSB-AJ-01-10'MS TSB-AJ-01-10'MSD 7263176MB	J (all detects) UJ (all non-detects)	A
9/26/07 (FCAL6868)	Acetonitrile	0.02781 (≥0.05)	TSB-BJ-01-10'RE 7270145MB	J (all detects) UJ (all non-detects)	A

*Indicates change as the result of report review.

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/26/07 (FCAL6869)	Ethanol	0.00303 (≥0.05)	TSB-BJ-01-10'RE 7270145MB	J (all detects) UJ (all non-detects)	A
9/17/07 (LCAL5900)	1,2-Dibromo-3-chloropropane	0.04545 (≥0.05)	All water samples in SDG F7I100142	J (all detects) UJ (all non-detects)	A
9/17/07 (LCAL5901)	Ethanol	0.00696 (≥0.05)	All water samples in SDG F7I100142	J (all detects) UJ (all non-detects)	A

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
7261455MB	9/17/07	Acetone 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Toluene 1,2,4-Trimethylbenzene	7.2 ug/Kg 0.17 ug/Kg 0.13 ug/Kg 0.21 ug/Kg 0.29 ug/Kg 0.35 ug/Kg	TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10' TSB-AJ-01-0'**
7263176MB	9/19/07	Acetone 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	15 ug/Kg 0.20 ug/Kg 0.19 ug/Kg 0.26 ug/Kg	TSB-AJ-01-10'** TSB-AJ-02-0'** TSB-AJ-02-0'-Dup** TSB-AJ-02-10'** TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'** TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'**
7270145MB	9/26/07	1,2,4-Trimethylbenzene	0.22 ug/Kg	TSB-BJ-01-10'RE

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

*Indicates change as the result of report review.

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TSB-AR-06-0'	Acetone Toluene 1,2,4-Trimethylbenzene	6.1 ug/Kg 0.30 ug/Kg 0.39 ug/Kg	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg
TSB-AR-06-0'-Dup	Acetone Toluene 1,2,4-Trimethylbenzene	5.2 ug/Kg 0.45 ug/Kg 0.39 ug/Kg	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg
TSB-AR-06-10'	Acetone Toluene 1,2,4-Trimethylbenzene	14 ug/Kg 0.25 ug/Kg 0.33 ug/Kg	21U ug/Kg 5.1U ug/Kg 5.1U ug/Kg
TSB-AJ-01-0'**	Acetone 1,2,4-Trimethylbenzene	7.7 ug/Kg 0.34 ug/Kg	20U ug/Kg 5.1U ug/Kg
TSB-AJ-01-10'**	Acetone	11 ug/Kg	21U ug/Kg
TSB-AJ-02-0'**	Acetone 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	6.1 ug/Kg 0.18 ug/Kg 0.19 ug/Kg 0.32 ug/Kg	20U ug/Kg 5.1U ug/Kg 5.1U ug/Kg 5.1U ug/Kg
TSB-AJ-02-0'-Dup**	Acetone	8.5 ug/Kg	20U ug/Kg
TSB-AJ-02-10'**	Acetone	10 ug/Kg	21U ug/Kg
TSB-AJ-03-0'**	Acetone	11 ug/Kg	20U ug/Kg
TSB-AJ-03-10'**	Acetone	9.4 ug/Kg	21U ug/Kg
TSB-BJ-01-0'**	Acetone	10 ug/Kg	20U ug/Kg
TSB-BJ-01-10'	Acetone	30 ug/Kg	30U ug/Kg
TSB-BJ-02-0'**	Acetone	8.0 ug/Kg	20U ug/Kg
TSB-BJ-02-10'**	Acetone	9.4 ug/Kg	22U ug/Kg
TSB-BR-06-0'**	Acetone	6.8 ug/Kg	20U ug/Kg
TSB-BR-06-10'**	Acetone	20 ug/Kg	25U ug/Kg

*Indicates change as the result of report review.

Samples TRIP BLANK(002), TRIP BLANK(003), TRIP BLANK(004), TRIP BLANK(005), TRIP BLANK(006), TRIP BLANK(007), TRIP BLANK(008), and TRIP BLANK(009) were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TRIP BLANK(002)	9/7/07	Acetone Toluene	5.3 ug/L 0.18 ug/L	TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10'
TRIP BLANK(003)	9/7/07	Acetone Toluene	4.9 ug/L 0.19 ug/L	TSB-AJ-01-0'** TSB-AJ-01-10'** TSB-AJ-02-0'**
TRIP BLANK(004)	9/7/07	Acetone Toluene	4.5 ug/L 0.25 ug/L	TSB-AJ-02-0'-Dup** TSB-AJ-02-10'** TSB-AJ-03-0'**
TRIP BLANK(005)	9/7/07	Acetone Toluene	6.3 ug/L 0.27 ug/L	TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'**
TRIP BLANK(006)	9/7/07	Acetone Toluene	4.7 ug/L 0.19 ug/L	TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'**
TRIP BLANK(007)	9/7/07	Acetone	4.9 ug/L	TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'**
TRIP BLANK(008)	9/7/07	Acetone	4.4 ug/L	RINSATE 2
TRIP BLANK(009)	9/7/07	Acetone	3.6 ug/L	RINSATE 2

Sample "RINSATE 2" was identified as a rinsate. No volatile contaminants were found in this blank with the following exceptions:

Rinsate ID	Sampling Date	Compound	Concentration	Associated Samples
RINSATE 2	9/7/07	Acetone Chloroform Bromodichloromethane Chloromethane	2.1 ug/L 5.3 ug/L 4.8 ug/L 0.31 ug/L	All soil samples in SDG F7I100142

*Indicates change as the result of report review.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
TSB-AR-06-0'	Acetone Toluene	6.1 ug/Kg 0.30 ug/Kg	21U ug/Kg 5.2U ug/Kg
TSB-AR-06-0'-Dup	Acetone Toluene	5.2 ug/Kg 0.45 ug/Kg	21U ug/Kg 5.2U ug/Kg
TSB-AR-06-10'	Acetone Toluene	14 ug/Kg 0.25 ug/Kg	21U ug/Kg 5.1U ug/Kg
TSB-AJ-01-0'**	Acetone	7.7 ug/Kg	20U ug/Kg
TSB-AJ-01-10'**	Acetone	11 ug/Kg	21U ug/Kg
TSB-AJ-02-0'**	Acetone Toluene	6.1 ug/Kg 0.62 ug/Kg	20U ug/Kg 5.1U ug/Kg
TSB-AJ-02-0'-Dup**	Acetone Toluene	8.5 ug/Kg 0.25 ug/Kg	20U ug/Kg 5.1U ug/Kg
TSB-AJ-02-10'**	Acetone Toluene	10 ug/Kg 0.21 ug/Kg	21U ug/Kg 5.1U ug/Kg
TSB-AJ-03-0'**	Acetone Toluene	11 ug/Kg 0.82 ug/Kg	20U ug/Kg 5.1U ug/Kg
TSB-AJ-03-10'**	Acetone	9.4 ug/Kg	21U ug/Kg
TSB-BJ-01-0'**	Acetone Toluene	10 ug/Kg 0.29 ug/Kg	20U ug/Kg 5.1U ug/Kg
TSB-BJ-02-0'**	Acetone Toluene	8.0 ug/Kg 0.67 ug/Kg	20U ug/Kg 5.1U ug/Kg
TSB-BJ-02-10'**	Acetone Toluene	9.4 ug/Kg 0.20 ug/Kg	22U ug/Kg 5.4U ug/Kg
TSB-BR-06-0'**	Acetone Toluene	6.8 ug/Kg 0.34 ug/Kg	20U ug/Kg 5.1U ug/Kg

*Indicates change as the result of report review.

Sample	Compound	Reported Concentration	Modified Final Concentration
TSB-BR-06-10'**	Acetone Toluene	20 ug/Kg 0.31 ug/Kg	25U ug/Kg 6.3U ug/Kg
RINSATE 2	Acetone	2.1 ug/L	2.1U ug/L

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
TSB-BJ-01-10'	Toluene-d8 Bromofluorobenzene	56 (67-150) 54 (57-150)	All TCL compounds	J- (all detects) UJ (all non-detects)	A

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since there were no associated samples, no data were qualified.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
7270145LCS (TSB-BJ-01-10'RE 7270145MB)	Vinyl chloride Bromomethane	123 (49-121) 156 (53-150)	- -	- -	J+ (all detects) J+ (all detects)	P

Although the LCS/LCSD percent recoveries (%R) and relative percent differences (RPD) were not within QC limits for some compounds, the LCS/LCSD and MS/MSD percent recoveries (%R) were within QC limits and no data were qualified.

IX. Regional Quality Assurance and Quality Control

Not applicable.

*Indicates change as the result of report review.

*X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
TSB-BJ-01-10'	1,4-Dichlorobenzene-d4 Chlorobenzene-d5 Fluorobenzene	139856 (197841-791364) 272304 (410129-1640516) 4242163 (688644-2754574)	All TCL compounds	J (all detects) UJ (all non-detects)	A

*Removed minus sign from the Flag in table above.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of the report if data has been qualified.

XVI. Field Duplicates

Samples TSB-AR-06-0' and TSB-AR-06-0'-Dup and samples TSB-AJ-02-0'** and TSB-AJ-02-0'-Dup** were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flags	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup				
Acetone	6.1	5.2	-	0.9 ug/Kg (≤21)	-	-
Toluene	0.30	0.45	-	0.15 ug/Kg (≤5.2)	-	-
1,2,4-Trimethylbenzene	0.39	0.39	-	0 ug/Kg (≤5.2)	-	-

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flags	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**				
Acetone	6.1	8.5	-	2.4 ug/Kg (≤20)	-	-
1,2-Dichlorobenzene	0.18	5.1U	-	4.92 ug/Kg (≤5.1)	-	-
1,3-Dichlorobenzene	0.19	5.1U	-	4.91 ug/Kg (≤5.1)	-	-
1,4-Dichlorobenzene	0.32	5.1U	-	4.78 ug/Kg (≤5.1)	-	-
Toluene	0.62	0.25	-	0.37 ug/Kg (≤5.1)	-	-
1,2,4-Trimethylbenzene	0.57	0.41	-	0.16 ug/Kg (≤5.1)	-	-

*Indicates change as the result of report review.

*BRC Parcel 4A/4B Sampling Event
Volatiles - Data Qualification Summary - SDG F7I100142

SDG	Sample	Compound	Flag	A or P	Reason
F7I100142	TSB-BJ-01-10'RE	All TCL compounds	J- (all detects) UJ (all non-detects)	A	Technical holding times
F7I100142	TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10' TSB-AJ-01-0'** TSB-AJ-01-10'** TSB-AJ-02-0'** TSB-AJ-02-0'-Dup** TSB-AJ-02-10'** TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'** TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-01-10'RE TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'**	Acetonitrile Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
F7I100142	RINSATE 2 TRIP BLANK(002) TRIP BLANK(003) TRIP BLANK(004) TRIP BLANK(005) TRIP BLANK(006) TRIP BLANK(007) TRIP BLANK(008) TRIP BLANK(009)	1,2-Dibromo-3-chloropropane Ethanol	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
F7I100142	TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10' TSB-AJ-01-0'**	Bromomethane Isopropylbenzene n-Butylbenzene Ethanol 2,4-Dimethylpentane 2-Methylhexane 2,3-Dimethylpentane 3-Ethylpentane 1,3,5-Trichlorobenzene	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A	Continuing calibration (%D)

*Indicates change as the result of report review.

SDG	Sample	Compound	Flag	A or P	Reason
F7I100142	TSB-AJ-01-10'** TSB-AJ-02-0'** TSB-AJ-02-0'-Dup** TSB-AJ-02-10'** TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'** TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'**	Bromomethane 2,4-Dimethylpentane 3,3-Dimethylpentane 2-Methylhexane 2,3-Dimethylpentane 3-Methylhexane 3-Ethylpentane n-Heptane 1,3,5-Trichlorobenzene	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A	Continuing calibration (%D)
F7I100142	TSB-BJ-01-10'RE	Bromomethane Ethanol 2,2-Dimethylpentane 2,4-Dimethylpentane 2,2,3-Trimethylbutane 3,3-Dimethylpentane 2-Methylhexane 2,3-Dimethylpentane 3-Methylhexane 3-Ethylpentane n-Heptane 1,3,5-Trichlorobenzene	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A	Continuing calibration (%D)
F7I100142	RINSATE 2 TRIP BLANK(002) TRIP BLANK(003) TRIP BLANK(004) TRIP BLANK(005) TRIP BLANK(006) TRIP BLANK(007) TRIP BLANK(008) TRIP BLANK(009)	Bromomethane Carbon disulfide	J+ (all detects) J+ (all detects)	A	Continuing calibration (%D)
F7I100142	TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10' TSB-AJ-01-0'** TSB-AJ-01-10'** TSB-AJ-02-0'** TSB-AJ-02-0'-Dup** TSB-AJ-02-10'** TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'** TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'** TSB-BJ-01-10'RE	Acetonitrile Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)

*Indicates change as the result of report review.

SDG	Sample	Compound	Flag	A or P	Reason
F7I100142	RINSATE 2 TRIP BLANK(002) TRIP BLANK(003) TRIP BLANK(004) TRIP BLANK(005) TRIP BLANK(006) TRIP BLANK(007) TRIP BLANK(008) TRIP BLANK(009)	1,2-Dibromo-3-chloropropane Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
F7I100142	TSB-BJ-01-10'	All TCL compounds	J- (all detects) UJ (all non-detects)	A	Surrogate recovery (%R)
*F7I100142	TSB-BJ-01-10'	All TCL compounds	J (all detects) UJ (all non-detects)	A	Internal standards (area)

BRC Parcel 4A/4B Sampling Event
Volatiles - Laboratory Blank Data Qualification Summary - SDG F7I100142

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
F7I100142	TSB-AR-06-0'	Acetone Toluene 1,2,4-Trimethylbenzene	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg	A
F7I100142	TSB-AR-06-0'-Dup	Acetone Toluene 1,2,4-Trimethylbenzene	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg	A
F7I100142	TSB-AR-06-10'	Acetone Toluene 1,2,4-Trimethylbenzene	21U ug/Kg 5.1U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-AJ-01-0'**	Acetone 1,2,4-Trimethylbenzene	20U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-AJ-01-10'**	Acetone	21U ug/Kg	A
F7I100142	TSB-AJ-02-0'**	Acetone 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	20U ug/Kg 5.1U ug/Kg 5.1U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-AJ-02-0'-Dup**	Acetone	20U ug/Kg	A
F7I100142	TSB-AJ-02-10'**	Acetone	21U ug/Kg	A

*Indicates change as the result of report review.

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
F7I100142	TSB-AJ-03-0'**	Acetone	20U ug/Kg	A
F7I100142	TSB-AJ-03-10'**	Acetone	21U ug/Kg	A
F7I100142	TSB-BJ-01-0'**	Acetone	20U ug/Kg	A
F7I100142	TSB-BJ-01-10'	Acetone	30U ug/Kg	A
F7I100142	TSB-BJ-02-0'**	Acetone	20U ug/Kg	A
F7I100142	TSB-BJ-02-10'**	Acetone	22U ug/Kg	A
F7I100142	TSB-BR-06-0'**	Acetone	20U ug/Kg	A
F7I100142	TSB-BR-06-10'**	Acetone	25U ug/Kg	A

BRC Parcel 4A/4B Sampling Event
Volatiles - Field Blank Data Qualification Summary - SDG F7I100142

SDG	Sample	Compound	Modified Final Concentration	A or P
F7I100142	TSB-AR-06-0'	Acetone Toluene	21U ug/Kg 5.2U ug/Kg	A
F7I100142	TSB-AR-06-0'-Dup	Acetone Toluene	21U ug/Kg 5.2U ug/Kg	A
F7I100142	TSB-AR-06-10'	Acetone Toluene	21U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-AJ-01-0'**	Acetone	20U ug/Kg	A
F7I100142	TSB-AJ-01-10'**	Acetone	21U ug/Kg	A
F7I100142	TSB-AJ-02-0'**	Acetone Toluene	20U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-AJ-02-0'-Dup**	Acetone Toluene	20U ug/Kg 5.1U ug/Kg	A

*Indicates change as the result of report review.

SDG	Sample	Compound	Modified Final Concentration	A or P
F7I100142	TSB-AJ-02-10'**	Acetone Toluene	21U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-AJ-03-0'**	Acetone Toluene	20U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-AJ-03-10'**	Acetone	21U ug/Kg	A
F7I100142	TSB-BJ-01-0'**	Acetone Toluene	20U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-BJ-02-0'**	Acetone Toluene	20U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-BJ-02-10'**	Acetone Toluene	22U ug/Kg 5.4U ug/Kg	A
F7I100142	TSB-BR-06-0'**	Acetone Toluene	20U ug/Kg 5.1U ug/Kg	A
F7I100142	TSB-BR-06-10'**	Acetone Toluene	25U ug/Kg 6.3U ug/Kg	A
F7I100142	RINSATE 2	Acetone	2.1U ug/L	A

*Indicates change as the result of report review.

LDC #: 17590C1
SDG #: F7I100142
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 10/18/07
Page: 1 of 1
Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 9/07/07
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	%RSD r ✓
IV.	Continuing calibration /ICV	SW	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	TSB-AR-13-0'
VIII.	Laboratory control samples	SW	LCS /D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D_1 = 10, 11 D_2 = 15, 16
XVII.	Field blanks	SW	R = 1 TB = 2-9

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	RINSATE 2	W	11	TSB-AR-06-0'-Dup	D_1 S	21	TSB-BJ-06-10'**	S	31	7261126 MB
2	TRIP BLANK(002)		12	TSB-AR-06-10'		22	TSB-BJ-01-0'**		32	7261455 MB
3	TRIP BLANK(003)		13	TSB-AJ-01-0'**		23	TSB-BJ-01-10'		33	7263176 MB
4	TRIP BLANK(004)		14	TSB-AJ-01-10'**		24	TSB-BJ-01-10'RE		34	7270145 MB
5	TRIP BLANK(005)		15	TSB-AJ-02-0'**	D_2	25	TSB-BJ-02-0'**		35	
6	TRIP BLANK(006)		16	TSB-AJ-02-0'-Dup**	D_2	26	TSB-BJ-02-10'**		36	
7	TRIP BLANK(007)		17	TSB-AJ-02-10'**		27	TSB-BR-06-0'**		37	
8	TRIP BLANK(008)		18	TSB-AJ-03-0'**		28	TSB-BR-06-10'**		38	
9	TRIP BLANK(009)		19	TSB-AJ-03-10'**		29	TSB-AJ-01-10'MS		39	
10	TSB-AR-06-0'	D_1 S	20	TSB-BJ-06-0'**		30	TSB-AJ-01-10'MSD		40	

LDC #: 17590 C1
SDG #: Cu Cover

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: JVG
2nd Reviewer:

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation?	✓			
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) > 0.05?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?		✓		
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	✓			
VII. Matrix Spike/Matrix Spike Duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS CHECKLIST

Reviewer: MV
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		
[illegible]				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
[illegible]				
Were internal standard area counts within -50% or +100% of the associated calibration standard?		✓		
Were retention times within + 30 seconds of the associated calibration standard?	✓			
[illegible]				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
[illegible]				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
[illegible]				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
[illegible]				
System performance was found to be acceptable.	✓			
[illegible]				
Overall assessment of data was found to be acceptable.	✓			
[illegible]				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
[illegible]				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Dimethyl disulfide
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 2-Nitropropane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP. 2,3-Dimethyl pentane
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ. n-Heptane
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR. 2,4-Dimethyl pentane
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS. 3,3-Dimethyl pentane
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT. 2-Methylhexane
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU. 3-Methylhexane
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV. 3-Ethyl pentane

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

WWWW. Nonanal
XXXX. 2,2,-Dimethylpentane
YYYY. 2,2,3-Trimethyl butane

LDC #: 17590 CJ
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: [illegible]

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?

METHOD : GC/MS VOA (EPA SW 846 Method 8260B)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	(Analysis date)	Total # of Days	Qualifier
24	S	N	9/07/07	—	9/26/07	19	J-/UJ/A

TECHNICAL HOLDING TIME CRITERIA

Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
Water preserved:	Both within 14 days of sample collection.
Soil:	Both within 14 days of sample collection.

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?
Y N N/A Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?
Y N N/A Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation? $r^2 \geq 0.99$
Y N N/A Did the initial calibration meet the acceptance criteria?
Y N N/A Were all %RSDs and RRFs within the validation criteria of ≤30 %RSD and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %RSD (Limit: <30.0%)	Finding RRF (Limit: >0.05)	Associated Samples	Qualifications
	9/12/07	ICAL-F	EEEE		0.02504	All soils + 726455 MB 726376 727045	J/UJ/A
	8/09/07	ICAL-F	WWW		0.00236		
	9/05/07	ICAL-L	MM		0.04952	All water + 726126 MB	J/UJ/A
	9/17/07	ICAL-L	WWW		0.00640		

INICAL.1SB

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 2
Reviewer: JVC
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?
Y N N/A Were all %D and RRFs within the validation criteria of ≤25 %D and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: <25.0%)	Finding RRF (Limit: >0.05)	Associated Samples	Qualifications
	9/17/07	FCAL 6596	B (+)	40.02851		10-13, 726145SMB	J+ dets /A
			VV (+)	27.92578			
			III (+)	25.11695			
			EEEE		0.02645		J/UJ/A
		FCAL 6595	WWW (+)	33.03521			J+ dets /A
			RRRR (+)	30.95347			
			TTTT (+)	27.35427			
			PPPP (+)	32.85444			
			VVVV (+)	26.97157			
			000 (+)	34.30185			
			WWW		0.00314	✓	J/UJ/A
	9/19/07	FCAL 6679	B (+)	25.67691		14-23, 25-30,	J+ dets /A
			EEEE		0.02405	726 3176 MB	J/UJ /A
		FCAL 6677	WWW		0.00275		
			RRRR (+)	34.80930			J+ dets /A
			SSSS (+)	26.27787			
			TTTT (+)	34.56763			
			PPPP (+)	35.92803			
			UUUU (+)	30.87411			
			VVVV (+)	31.96103			
			QQQQ (+)	31.12890			
			000 (+)	36.09997		✓	✓

CONCAL.1SB

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 2 of 2
Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

(Y) N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?

Y (N) N/A Were all %D and RRFs within the validation criteria of ≤25 %D and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: <25.0%)	Finding RRF (Limit: >0.05)	Associated Samples	Qualifications
	9/26/07	FCAL 6868	B (+)	33.18003		24, 7270145 MB	J+ dets /A
			EEEE		0.02781		J/UJ /A
		FCAL 6869	WWW		0.00303		
			WWW (+)	28.17525			J+ dets /A
			XXXX (+)	38.12606			
			RRRR (+)	52.78176			
			YYYY (+)	38.94309			
			SSSS (+)	42.44628			
			TTTT (+)	52.27788			
			PPPP (+)	55.60273			
			UUUU (+)	49.63469			
			VVVV (+)	48.50320			
			QQQQ (+)	46.15427			
			OOO (+)	36.72640			
	9/17/07	LCAL5900	B (+)	67.52117		All water + 7261/26MB	J+ dets /A
			G (+)	36.67244			
			MM		0.04545		J/UJ /A
		LCAL5901	WW		0.00696	[illegible]	

CONCAL.1SB

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVG
2nd Reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank associated with every sample in this SDG?
Y N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
Y N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 9/17/07
Conc. units: ug/kg
Associated Samples: 10 – 13

Compound	Blank ID	Sample Identification								
	726455MB	10	11	12	13					
Methylene chloride										
Acetone	7.2	6.1/21 U	5.2/21 U	14/21 U	7.7/20 U					
JJJ	0.17									
FFF	0.13									
HHH	0.21									
CC	0.29	0.30/5.2U	0.45/5.2U	0.25/5.1U						
CRQL DDD	0.35	0.39 ↓	0.39 ↓	0.33 ↓	0.34/5.1U					

Blank analysis date: 9/19/07
Conc. units: ug/kg
Associated Samples: 14 – 23, 25

Compound	Blank ID	Sample Identification								
	726176MB	14	15	16	17	18	19	22	23	25
Methylene chloride										
Acetone	15	11/21 U	6.1/20 U	8.5/20 U	10/21 U	11/20 U	9.4/21 U	10/20 U	30/ U	8.0/20 U
JJJ	0.20		0.18/5.1U							
FFF	0.19		0.19 ↓							
HHH	0.26		0.32 ↓							
CRQL										

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 2 of 7
Reviewer: SVG
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank associated with every sample in this SDG?
Y N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
Y N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 9/19/07
Conc. units: ug/Kg
Associated Samples: 14-23, 25-28

Compound	Blank ID	Sample Identification								
(continued from p.1)	7263176MB	26	27	28						
Methylene chloride										
Acetone	15	9.4/22U	6.8/20U	20/25U						
JJJ	0.20									
FFF	0.19									
HHH	0.26									
CRQL										

Blank analysis date: 9/26/07
Conc. units: ug/Kg
Associated Samples: 24 (ND)

Compound	Blank ID	Sample Identification								
	7270145MB									
Methylene chloride										
Acetone										
DDD	0.22									
CRQL										

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG
2nd Reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

(Y) N /N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L **Associated sample units:** ug/kg

Field blank type: (circle one) Field Blank / (Rinsate) / Trip Blank / Other: _____ Associated Samples: All soils

Compound	Blank ID 1	Blank ID	Sample Identification							
Sampling Date	9/07/07		10	11	12	13	14	15	16	17
Methylene chloride										
Acetone	2.1		6.1/21 U	5.2/21 U	14/21 U	7.7/20 U	11/21 U	6.1/20 U	8.5/20 U	10/21 U
Chloroform	5.3									
P	4.8									
A	0.31									
CRQL										

Blank units: _____ **Associated sample units:** (Same as above)

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: _____ Associated Samples: _____

Compound	Blank ID 1	Blank ID	Sample Identification							
Sampling Date	9/07/07		18	19	22	23	25	26	27	28
Methylene chloride										
Acetone	2.1		11/20 U	9.4/21 U	10/20 U	(30)	8.0/20 U	9.4/22 U	6.8/20 U	20/25 U
Chloroform	5.3									
P	4.8									
A	0.31									
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N /N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L **Associated sample units:** ug/kg

Field blank type: (circle one) Field Blank / Rinsate / (Trip Blank) / Other: Associated Samples: 10 – 12

Compound	Blank ID 2	Blank ID	Sample Identification							
Sampling Date	9/07/07		10	11	12					
Methylene chloride										
Acetone	5.3		6.1/21 U	5.2/21U	14/21 U					
Chloroform										
CC	0.18		0.30/5.2U	0.45/5.2U	0.25/5.1U					
CRQL										

Blank units: ug/L **Associated sample units:** ug/kg

Field blank type: (circle one) Field Blank / Rinsate / (Trip Blank) / Other: Associated Samples: 13-15

Compound	Blank ID 3	Blank ID	Sample Identification							
Sampling Date	9/07/07		13	14	15					
Methylene chloride										
Acetone	4.9		7.7/20 U	11/21 U	6.1/20U					
Chloroform										
CC	0.19				0.62/5.1U					
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N /N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L **Associated sample units:** ug/kg
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 16 - 18

Compound	Blank ID 4	Blank ID	Sample Identification							
Sampling Date	9/07/07		16	17	18					
Methylene chloride										
Acetone	4.5		8.5/20	10/21 U	11/20 U					
Chloroform										
CC	0.25		0.25/5.1U	0.21/5.1U	0.82/5.1U					
CRQL										

Blank units: ug/L 9/18/07 **Associated sample units:** ug/kg
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 22 - 25

Compound	Blank ID 5	Blank ID	Sample Identification							
Sampling Date	9/07/07		22	23	25					
Methylene chloride										
Acetone	6.3		10/20U	30/U	8.0/20U					
Chloroform										
CC	0.27		0.29/5.1		0.67/5.1U					
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 17590 C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG
2nd Reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N /N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L **Associated sample units:** ug/Kg
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 26 – 28

Compound	Blank ID 6	Blank ID	Sample Identification							
Sampling Date	9/07/07		26	27	28					
Methylene chloride										
Acetone	4.7		9.4 /22U	6.8 /20U	20 /25U					
Chloroform										
CC	0.19		0.20 /5.4U	0.34 /5.1U	0.31 /6.3U					
CRQL										

Blank units: ug/L **Associated sample units:** ug/Kg
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 19 – 21

Compound	Blank ID 7	Blank ID	Sample Identification							
Sampling Date	9/07/07		19							
Methylene chloride										
Acetone	4.9		9.4/21U							
Chloroform										
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JV6
2nd Reviewer: 9

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N /N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L **Associated sample units:** ug/

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: _____ Associated Samples: 1

Compound	Blank ID 8	Blank ID 9	Sample Identification							
Sampling Date	9/07	/07	1							
Methylene chloride										
Acetone	4.4	3.6	2.1/U							
Chloroform										
CRQL										

Blank units: _____ **Associated sample units:** _____

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: _____ Associated Samples: _____

Compound	Blank ID	Blank ID	Sample Identification							
Sampling Date										
Methylene chloride										
Acetone										
Chloroform										
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Page: 1 of 1
Reviewer: JVB
2nd Reviewer: 2

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all surrogate %R within QC limits?

(Y) N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
		23	TOL	56 (67-150)	J-/UJ/A
			BFB	54 (57-150)	↓
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	QC Limits (Soil)	QC Limits (Water)
SMC1 (TOL) = Toluene-d8	81-117	88-110
SMC2 (BFB) = Bromofluorobenzene	74-121	86-115
SMC3 (DCE) = 1,2-Dichloroethane-d4	80-120	80-120
SMC4 (DFM) = Dibromofluoromethane	80-120	86-118

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: JV6
2nd Reviewer: 9

METHOD : GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		TSB-AR-13-0' MS/MSD	HH	2.8 (10-150)	0 (10-150)	200 ( )	None	No qual
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	≤ 22%	61-145%	≤ 14%
S.	Trichloroethene	62-137%	≤ 24%	71-120%	≤ 14%
V.	Benzene	66-142%	≤ 21%	76-127%	≤ 11%
CC.	Toluene	59-139%	≤ 21%	76-125%	≤ 13%
DD.	Chlorobenzene	60-133%	≤ 21%	75-130%	≤ 13%

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?
Y (N) N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		7261126 LCS/D	B	( )	173 (38-140)	85 (20)	All water + 7261126 MB	No qual (LCS in)
			F	( )	( )	56 ( )		
			NN	( )	( )	43 ( )		
			KK	160 (71-133)	( )	45 ( )		(LCSD in)
			EEEE	( )	( )	25 ( )		
				( )	( )	( )		
				( )	( )	( )		
		7261455 LCS	UU	116 (83-115)	( )	( )	10-13, 7261455 MB	No qual (MS/D in)
				( )	( )	( )		
				( )	( )	( )		
		7263176 LCS	U	116 (74-115)	( )	( )	14-23, 25-28,	No qual (MS/D in)
			X	120 (70-114)	( )	( )	7263176 MB	
			FF	123 84-121	( )	( )		
			VV	126 (82-123)	( )	( )		
			YY	126 (76-125)	( )	( )		
			HH	119 (56-115)	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
		7270145 LCS	C	123 (49-121)	( )	( )	24, 7270145 MB	* J+ dets/D
			B	156 (53-150)	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

* MS/MSD non-client spike

LDC #: 19590 C4
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: JVB
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

X N N/A Were all internal standard area counts within -50 to +100% of the associated calibration standard?

Y N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		23	4DCB	139856 (197841 - 791364)		JM/MJ/A
			CBZ	272304 (410129 - 1640576)		
			FBZ	424163 (688644 - 2754574)		
						(qual all TCL)

(BCM) = Bromochloromethane
(DFB) = 1,4-Difluorobenzene
(CBZ) = Chlorobenzene-d5
(PFB) = Pentafluorobenzene
(4DCB) = 1,4-Dichlorobenzene-d4
(2DCB) = 1,2-Dichlorobenzene-d4
(FBZ) = Fluorobenzene

LDC #: 17590 C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: JVG
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( ) 10	11	RPD
F	6.1	5.2	0.9 (≤ 21 Diff)
CC	0.30	0.45	0.15 (≤ 5.2 Diff)
DDD	0.39	0.39	0

Compound	Concentration (ug/kg) 15	16	RPD
F	6.1	8.5	2.4 (≤ 20 Diff)
JJJ	0.18	5.1 U	4.92 (≤ 5.1 Diff)
FFF	0.19		4.91
HHH	0.3 J		4.78
CC	0.6 J	0.25	0.37
DDD	0.57	0.41	0.16

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 17590 C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (50 std)	Recalculated RRF (50 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	9/12/07	~~Methylene chloride~~ C (1st internal standard)	0.70494	0.70494	0.77278	0.77279	15.74992	15.75017
			~~Trichlorethene~~ EE (2nd internal standard)	2.29577	2.29577	2.40681	2.40681	7.79204	7.99204
	MSF		Toluene (3rd internal standard) BB	0.66586	0.66586	0.67499	0.67517	7.36887	7.53117
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_is)/(A_is)(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	FCAL6596	9/17/07	~~Methylene chloride~~ C (1st Internal standard)	0.77278	0.90927	0.90927	17.66260	17.6627
			~~Trichloroethene~~ EE (2nd Internal standard)	2.40681	2.69147	2.69147	11.82523	11.8250
			~~Toluene~~ BB (3rd Internal standard)	0.67499	0.67940	0.67940	0.65329	0.6535
2	FCAL6679	9/19/07	~~Methylene chloride~~ C (1st Internal standard)	0.77278	0.82320	0.82320	6.52389	6.5240
			~~Trichloroethene~~ EE (2nd Internal standard)	2.40681	2.51121	2.51121	4.33769	4.3375
			~~Toluene~~ BB (3rd Internal standard)	0.67499	0.73187	0.73187	8.41916	8.4194
3			Methylene chloride (1st Internal standard)					
			Trichloroethene (2nd Internal standard)					
			Toluene (3rd Internal standard)					
4			Methylene chloride (1st Internal standard)					
			Trichloroethene (2nd Internal standard)					
			Toluene (3rd Internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG
2nd reviewer: Q

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #13

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	50	50.0272	100	100	0
Bromofluorobenzene		48.4378	97	97	
1,2-Dichloroethane-d4		51.0516	102	102	
Dibromofluoromethane		45.8960	92	92	

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: JVC
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration

RPD = I MSC - MSDC I * 2/(MSC + MSDC) MSC = Matrix spike percent recovery MSDC = Matrix spike duplicate percent recovery

MS/MSD sample: 29/30 MS/MSD

Compound	Spike Added (ug/kg)		Sample Concentration (ug/kg)	Spiked Sample Concentration (ug/kg)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	-----	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	52.1	52.6	0	42.7	40.1	82	82	76	76	6.1	6.2
Trichloroethene	↑	↑		43.5	39.8	83	83	76	76	8.8	8.9
Benzene				44.4	40.4	85	85	77	77	9.3	9.4
Toluene				44.2	41.5	85	85	79	79	6.4	6.3
Chlorobenzene	↓	↓		44.1	41.2	85	85	78	78	6.8	6.8

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: JVC
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration
SA = Spike added

RPD = | LCS - LCSD | * 2/(LCS + LCSD) LCS = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: 726145S LCS

Compound	Spike Added (ug/kg)		Spiked Sample Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene	50	NA	50.9	NA	102	102				
Trichloroethene			51.0		102	102				
Benzene			51.8		104	104				
Toluene			52.4		105	105				
Chlorobenzene			52.8		106	107				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 17590 C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JVL
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. # 15, CO:

Conc. = $\frac{(13291)(50)(5.0ml)}{(906198)(1.20776)(4.99)(0.784)}$

= 0.618

≈ 0.61Y ug/kg

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Revision 1

LDC Report# 17590A21

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Parcel 4A/4B Sampling Event

Collection Date: September 5, 2007

LDC Report Date: October 29, 2007

Matrix: Soil

Parameters: Dioxins/Dibenzofurans

Validation Level: EPA Level III

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I060284

Sample Identification

TSB-AR-01-0'
TSB-AR-02-0'
TSB-AR-04-0'
TSB-AR-05-0'
TSB-AR-07-0'
TSB-AR-04-0'MS
TSB-AR-04-0'MSD

Introduction

This data review covers 7 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore

qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required daily frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

III. Initial Calibration

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

IV. Routine Calibration (Continuing)

Routine calibration was performed at the required frequencies.

All of the routine calibration percent differences (%D) between the initial calibration RRF and the routine calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Although the MS (%R) was not within QC limits for one compound, the MS percent recoveries (%R) were within QC limits and no data were qualified.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. The percent recoveries (%R) were within the QC limits.

VIII. Regional Quality Assurance and Quality Control

Not applicable.

*IX. Internal Standards

All internal standard recoveries were within QC limits with the following exceptions:

Sample	Internal Standards	%R (Limits)	Compound	Flag	A or P
TSB-AR-02-0'	^{13}C-2,3,7,8-TCDF ^{13}C-2,3,7,8-TCDD ^{13}C-1,2,3,7,8-PeCDF ^{13}C-1,2,3,7,8-PeCDD ^{13}C-1,2,3,4,6,7,8-HpCDF ^{13}C-1,2,3,4,6,7,8-HpCDD ^{13}C-OCDD	37 (40-135) 39 (40-135) 31 (40-135) 32 (40-135) 26 (40-135) 25 (40-135) 16 (40-135)	2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	J (all detects) UJ (all non-detects)	P

*Removed minus sign from the Flag in table above.

X. Target Compound Identifications

Raw data were not reviewed for this SDG.

XI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XII. System Performance

Raw data were not reviewed for this SDG.

XIII. Overall Assessment of Data

Data flags have been summarized at the end of the report if data has been qualified.

XIV. Field Duplicates

No field duplicates were identified in this SDG.

*Indicates change as the result of report review.

*BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Data Qualification Summary - SDG F7I060284

SDG	Sample	Compound	Flag	A or P	Reason
*F7I060284	TSB-AR-02-0'	2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	J (all detects) UJ (all non-detects)	P	Internal standards (%R)

BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG F7I060284

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG F7I060284

No Sample Data Qualified in this SDG

*Indicates change as the result of report review.

LDC #: 17590A21 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/13/07
SDG #: F7I060284 Level III Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: K
2nd Reviewer: A

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/5/07
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Routine calibration	A	
V.	Blanks	A	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	SW	
X.	Target compound identifications	N	
XI.	Compound quantitation and CRQLs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	TSB-AR-01-0' S	11	725639944B	21		31	
2	TSB-AR-02-0'	12		22		32	
3	TSB-AR-04-0'	13		23		33	
4	TSB-AR-05-0'	14		24		34	
5	TSB-AR-07-0'	15		25		35	
6	TSB-AR-04-0'MS	16		26		36	
7	TSB-AR-04-0'MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes:_____

LDC #: 17590A21
SDG #: F7I060284

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		6/7	R	135 (70-130)	( )	( )	3	No Qual
				( )	( )	( )		(MSD w/in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 17590A1
SDG #: FH06028

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: CM
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Are all internal standard recoveries were within the 40-135% criteria?
(Y) N N/A Was the S/N ratio all internal standard peaks ≥ 10?

#	Date	Lab ID/Reference	Internal Standard	% Recovery (Limit: 40-135%)	Qualifications
		2	A	37 (40-135)	J (all compounds)
			B	39 ( )	
			C	31 ( )	
			D	32 ( )	
			G	26 ( )	
			H	25 ( )	
			I	16 ( )	
				( )	(A-B, F-J, O-R)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Internal Standards	Check Standard Used
A.	^{13}C-2,3,7,8-TCDF	
B.	^{13}C-2,3,7,8-TCDD	
C.	^{13}C-1,2,3,7,8-PeCDF	
D.	^{13}C-1,2,3,7,8-PeCDD	
E.	^{13}C-1,2,3,6,7,8-HxCDF	
F.	^{13}C-1,2,3,6,7,8-HxCDD	
G.	^{13}C-1,2,3,4,6,7,8-HpCDF	
H.	^{13}C-1,2,3,4,6,7,8-HpCDD	
I.	^{13}C-OCDD	

	Recovery Standards	Check Standard Used
K.	^{13}C-1,2,3,4-TCDD	
L.	^{13}C-1,2,3,7,8,9-HxCDD	
M.		
N.		
O.		
P.		
Q.		
R.		
T		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Parcel 4A/4B Sampling Event

Collection Date: September 7, 2007

LDC Report Date: October 29, 2007

Matrix: Soil

Parameters: Dioxins/Dibenzofurans

Validation Level: EPA Level III & IV

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I100142

Sample Identification

TSB-AR-06-0'
TSB-AR-06-0'-Dup
TSB-AJ-01-0'**
TSB-AJ-02-0'**
TSB-AJ-03-0'**
TSB-BJ-06-0'**
TSB-BJ-01-0'**
TSB-BJ-02-0'**
TSB-BR-06-0'**

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 9 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent EPA Level IV review. EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by EPA Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required daily frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25% .

The exact mass of 380.9760 of PFK was verified. The static resolving power was at least 10,000 (10% valley definition) for samples on which EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

III. Initial Calibration

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio for each target compound was greater than or equal to 2.5 and and greater than or equal to 10 for each recovery and internal standard compound for samples on which EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

IV. Routine Calibration (Continuing)

Routine calibration was performed at the required frequencies.

All of the routine calibration percent differences (%D) between the initial calibration RRF and the routine calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. The percent recoveries (%R) were within the QC limits.

VIII. Regional Quality Assurance and Quality Control

Not applicable.

*IX. Internal Standards

All internal standard recoveries were within QC limits with the following exceptions:

Sample	Internal Standards	%R (Limits)	Compound	Flag	A or P
TSB-AJ-01-0'**	^{13}C-OCDD	26 (40-135)	OCDD OCDF	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
TSB-BJ-01-0'**	^{13}C-OCDD	34 (40-135)	OCDD OCDF	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
TSB-BJ-02-0'**	^{13}C-1,2,3,4,6,7,8-HpCDF ^{13}C-1,2,3,4,6,7,8-HpCDD ^{13}C-OCDD	24 (40-135) 24 (40-135) 14 (40-135)	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	J (all detects) UJ (all non-detects)	P

*Removed minus sign from the Flag in table above.

X. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

XI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

XII. System Performance

The system performance was acceptable for samples on which EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

XIII. Overall Assessment of Data

Data flags have been summarized at the end of the report if data has been qualified.

XIV. Field Duplicates

Samples TSB-AR-06-0' and TSB-AR-06-0'-Dup were identified as field duplicates. No polychlorinated dioxin/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/g)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup				
2,3,7,8-TCDF	1.1	0.43U	-	0.67 (≤0.43)	J (all detects) UJ (all non-detects)	A
1,2,3,4,7,8-HxCDF	3.4	1.4U	-	2 (≤1.4)	J (all detects) UJ (all non-detects)	A
1,2,3,4,6,7,8-HpCDF	6.9	2.8	85 (≤50)	-	J (all detects)	A
OCDF	19	4.9U	-	14.1 (≤4.9)	J (all detects) UJ (all non-detects)	A

*Indicates change as the result of report review.

*BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Data Qualification Summary - SDG F7I100142

SDG	Sample	Compound	Flag	A or P	Reason
*F7I100142	TSB-AJ-01-0'** TSB-BJ-01-0'**	OCDD OCDF	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Internal standards (%R)
*F7I100142	TSB-BJ-02-0'**	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	J (all detects) UJ (all non-detects)	P	Internal standards (%R)
F7I100142	TSB-AR-06-0' TSB-AR-06-0'-Dup	2,3,7,8-TCDF 1,2,3,4,7,8-HxCDF OCDF	J (all detects) UJ (all non-detects)	A	Field duplicates (Difference)
F7I100142	TSB-AR-06-0' TSB-AR-06-0'-Dup	1,2,3,4,6,7,8-HpCDF	J (all detects)	A	Field duplicates (RPD)

BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG F7I100142

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG F7I100142

No Sample Data Qualified in this SDG

*Indicates change as the result of report review.

LDC #: 17590C21 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/15/07
SDG #: F7I100142 Level III/IV Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: 1
2nd Reviewer: 2

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/7/07
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Routine calibration	A	
V.	Blanks	A	
VI.	Matrix spike/Matrix spike duplicates	N	client specified
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	SW	
X.	Target compound identifications	A	Not reviewed for Level III validation.
XI.	Compound quantitation and CRQLs	A	Not reviewed for Level III validation.
XII.	System performance	A	Not reviewed for Level III validation.
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	D = 1+2
XV.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

All soils

1	TSB-AR-06-0'	11	T26319MB	21		31	
2	TSB-AR-06-0'-Dup	12		22		32	
3	TSB-AJ-01-0'**	13		23		33	
4	TSB-AJ-02-0'**	14		24		34	
5	TSB-AJ-03-0'**	15		25		35	
6	TSB-BJ-06-0'**	16		26		36	
7	TSB-BJ-01-0'**	17		27		37	
8	TSB-BJ-02-0'**	18		28		38	
9	TSB-BR-06-0'**	19		29		39	
10		20		30		40	

Notes: _____

LDC #: 17590C2/
SDG #: FT1100142

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer:

Method: Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Was PFK exact mass 380.9760 verified?	✓			
Were the retention time windows established for all homologues?	✓			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ?	✓			
Is the static resolving power at least 10,000 (10% valley definition)?	✓			
Was the mass resolution adequately check with PFK?	✓			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	✓			
III. Initial calibration				
Was the initial calibration performed at 5 concentration levels?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled standards and ≤ 30% for labeled standards?	✓			
Did all calibration standards meet the Ion Abundance Ratio criteria?	✓			
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10?	✓			
IV. Continuing calibration				
Was a routine calibration performed at the beginning and end of each 12 hour period?	✓			
Were all percent differences (%D) ≤ 20% for unlabeled standards and ≤ 30% for labeled standards?	✓			
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank performed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?		✓		
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 17590C21
SDG #: DTI100142

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: 4

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
VIII. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
IX. Internal standards				
Were internal standard recoveries within the 40-135% criteria?		✓		
Was the minimum S/N ratio of all internal standard peaks ≥ 10?	✓			
X. Target compound identification				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	✓			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	✓			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	✓			
Did compound spectra contain all characteristic ions listed in the table attached?	✓			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?	✓			
Was the signal to noise ratio for each target compound and labeled standard ≥ 2.5?	✓			
Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)?	✓			
For PCDF identification, was any signal (S/N ≥ 2.5, at ± seconds RT) detected in the corresponding PCDPE channel?	✓			
Was an acceptable lock mass recorded and monitored?	✓			
XI. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			

LDC #: 17590C2
SDG #: 0FT1100142

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: 4

Validation Area	Yes	No	NA	Findings/Comments
Target compounds were detected in the field duplicates.	✓			
XV. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: _____

LDC #: 17590C2
SDG #: FT1100 KE2

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: A
2nd Reviewer: 8

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y (N) N/A Are all internal standard recoveries were within the 40-135% criteria?
(Y) N N/A Was the S/N ratio all internal standard peaks ≥ 10?

#	Date	Lab ID/Reference	Internal Standard	% Recovery (Limit: 40-135%)	Qualifications
		3	I	26 (40-135)	J- (F, 8)
				( )	
		T	I	34 ( )	↓
				( )	
		8	G	24 ( )	J- (F, 8)
			H	24 ( )	↓
			I	14 ( )	
				( )	
				( )	(F, G, O, P, 8, H-X)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Internal Standards	Check Standard Used		Recovery Standards	Check Standard Used
A.	^{13}C-2,3,7,8-TCDF		K.	^{13}C-1,2,3,4-TCDD	
B.	^{13}C-2,3,7,8-TCDD		L.	^{13}C-1,2,3,7,8,9-HxCDD	
C.	^{13}C-1,2,3,7,8-PeCDF		M.		
D.	^{13}C-1,2,3,7,8-PeCDD		N.		
E.	^{13}C-1,2,3,6,7,8-HxCDF		O.		
F.	^{13}C-1,2,3,6,7,8-HxCDD		P.		
G.	^{13}C-1,2,3,4,6,7,8-HpCDF		Q.		
H.	^{13}C-1,2,3,4,6,7,8-HpCDD		R.		
I	^{13}C-OCDD		T		

LDC #: 17390C2
SDG #: FT1B0K2

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd reviewer: 2

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A Were field duplicate pairs identified in this SDG.
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (~~PG~~/g)		RPD or D
	1	2	
H	1.1	0.43 U	0.6T (≤0.43) ~~J~~/U/A
K	3.4	1.4 U	2 (≤1.4) V
O	6.9	2.8	85 (≤50) ~~J~~/A
Q	19	4.9 U	14.1 (≤4.9) J/U/A

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 17690C2
SDG #: FT1100142

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: 9

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported RRF (CS3 std)	Recalculated RRF (CS3 std)	Reported %RSD	Recalculated %RSD
1	ICAL	9/25/0T	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	1.16T	1.16T	1.13	1.13	3.65	3.46
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	1.25T	1.25T	1.22	1.22	4.69	4.80
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	1.00T	1.00T	0.97T	0.97T	3.90	4.25
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	1.11T	1.11T	1.07T	1.07T	6.58	6.68
			OCDF (^{13}C-OCDD)	3.33T	3.33T	3.25	3.25	5.72	5.80
2	ICAL	7/10/0T	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	0.95T	0.95T	0.88	0.88	14.1	14.1
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)						
			OCDF (^{13}C-OCDD)						
3			2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)						
			OCDF (^{13}C-OCDD)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 17590a2
SDG #: FTT100142

VALIDATION FINDINGS WORKSHEET
Routine Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 2

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	25520TA1DS	9/26/07	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	1.167	1.13	1.13	2.8	2.8
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	1.254	1.23	1.23	2.0	2.0
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	1.007	0.98	0.98	3.0	2.9
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	1.111	1.10	1.10	0.6	0.6
			OCDF (^{13}C-OCDD)	3.332	3.29	3.29	1.3	1.3
2	25520A1DS	9/27/07	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	1.167	1.13	1.13	2.9	2.9
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	1.254	1.25	1.25	0.4	0.4
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	1.007	0.99	0.99	2.0	2.0
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	1.111	1.04	1.04	6.4	6.5
			OCDF (^{13}C-OCDD)	3.332	3.18	3.18	4.6	4.6
3	25520TTD2	9/28/07	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	0.954	0.96	0.96	0.4	0.4
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)					
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)					
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)					
			OCDF (^{13}C-OCDD)					

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Ions Monitored for HRGC/HRMS Analysis of PCDDs/PCDFs

Descriptor	Accurate mass[a]	Ion ID	Elemental Composition	Analyte	Descriptor	Accurate Mass[a]	Ion ID	Elemental Composition	Analyte
1	303.9016	M	$C_{12}H_4{}^{35}Cl_4O$	TCDF	4	407.7818	M+2	$C_{12}H^{35}Cl_6{}^{37}ClO$	HpCDF
	305.8987	M+2	$C_{12}H_4{}^{35}Cl_3{}^{37}C10$	TCDF		409.7788	M+4	$C_{12}H^{35}Cl_5{}^{37}Cl_2O$	HpCDF
	315.9419	M	$^{13}C_{12}H_4{}^{35}Cl_4O$	TCDF (S)		417.8250	M	$^{13}C_{12}H^{35}Cl_7O$	HpCDF (S)
	317.9389	M+2	$^{13}C_{12}H_4{}^{35}Cl_3{}^{37}ClO$	TCDF (S)		419.8220	M+2	$^{13}C_{12}H^{35}Cl_6{}^{37}ClO$	HpCDF
	319.8965	M	$C_{12}H_4{}^{35}Cl_4O_2$	TCDD		423.7767	M+2	$C_{12}H^{35}Cl_6{}^{37}ClO_2$	HpCDD
	321.8936	M+2	$C_{12}H_4{}^{35}Cl_3{}^{37}C10_2$	TCDD		425.7737	M+4	$C_{12}H^{35}Cl_5{}^{37}Cl_2O_2$	HpCDD
	331.9368	M	$^{13}C_{12}H_4{}^{35}Cl_4O_2$	TCDD (S)		435.8169	M+2	$^{13}C_{12}H^{35}Cl_6{}^{37}ClO_2$	HpCDD (S)
	333.9338	M+2	$^{13}C_{12}H_4{}^{35}Cl_3{}^{37}ClO_2$	TCDD (S)		437.8140	M+4	$^{13}C_{12}H^{35}Cl_5{}^{37}Cl_2O_2$	HpCDD (S)
	375.8364	M+2	$C_{12}H_4{}^{35}Cl_5{}^{37}ClO$	HxCDPE		479.7165	M+4	$C_{12}H^{35}Cl_7{}^{37}Cl_2O$	NCDPE
	[354.9792]	LOCK	C_9F_{13}	PFK		[430.9728]	LOCK	C_9F_{17}	PFK
2	339.8597	M+2	$C_{12}H_3{}^{35}Cl_4{}^{37}ClO$	PeCDF	5	441.7428	M+2	$C_{12}{}^{35}Cl_7{}^{37}ClO$	OCDF
	341.8567	M+4	$C_{12}H_3{}^{35}Cl_3{}^{37}Cl_2O$	PeCDF		443.7399	M+4	$C_{12}{}^{35}Cl_6{}^{37}Cl_2O$	OCDF
	351.9000	M+2	$^{13}C_{12}H_3{}^{35}Cl_4{}^{37}C10$	PeCDF (S)		457.7377	M+2	$C_{12}{}^{35}Cl_7{}^{37}ClO_2$	OCDD
	353.8970	M+4	$^{13}C_{12}H_3{}^{35}Cl_3{}^{37}Cl_2O$	PeCDF (S)		459.7348	M+4	$C_{12}{}^{35}Cl_6{}^{37}Cl_2O_2$	OCDD
	355.8546	M+2	$C_{12}H_3{}^{35}Cl_4{}^{37}ClO_2$	PeCDD		469.7780	M+2	$^{13}C_{12}{}^{35}Cl_7{}^{37}ClO_2$	OCDD (S)
	357.8516	M+4	$C_{12}H_3{}^{35}Cl_3{}^{37}Cl_2O_2$	PeCDD		471.7750	M+4	$^{13}C_{12}{}^{35}Cl_6{}^{37}Cl_2O_2$	OCDD (S)
	367.8949	M+2	$^{13}C_{12}H_3{}^{35}Cl_4{}^{37}ClO_2$	PeCDD (S)		513.6775	M+4	$C_{12}{}^{35}Cl_8{}^{37}Cl_2O$	DCDPE
	369.8919	M+4	$^{13}C_{12}H_3{}^{35}Cl_3{}^{37}Cl_2O_2$	PeCDD (S)		[422.9278]	LOCK	$C_{10}F_{17}$	PFK
	409.7974	M+2	$C_{12}H_3{}^{35}Cl_6{}^{37}ClO$	HpCDPE					
	[354.9792]	LOCK	C_9F_{13}	PFK					
3	373.8208	M+2	$C_{12}H_2{}^{35}Cl_5{}^{37}ClO$	HxCDF					
	375.8178	M+4	$C_{12}H_2{}^{35}Cl_4{}^{37}Cl_2O$	HxCDF					
	383.8639	M	$^{13}C_{12}H_2{}^{35}Cl_6O$	HxCDF (S)					
	385.8610	M+2	$^{13}C_{12}H_2{}^{35}Cl_5{}^{37}ClO$	HxCDF (S)					
	389.8156	M+2	$C_{12}H_2{}^{35}Cl_5{}^{37}ClO_2$	HxCDD					
	391.8127	M+4	$C_{12}H_2{}^{35}Cl_4{}^{37}Cl_2O_2$	HxCDD					
	401.8559	M+2	$^{13}C_{12}H_2{}^{35}Cl_5{}^{37}ClO_2$	HxCDD (S)					
	403.8529	M+4	$^{13}C_{12}H_2{}^{35}Cl_4{}^{37}Cl_2O_2$	HxCDD (S)					
	445.7555	M+4	$C_{12}H_2{}^{35}Cl_6{}^{37}Cl_2O$	OCDPE					
	[430.9728]	LOCK	C_9F_{17}	PFK					

(a) The following nuclidic masses were used:

H = 1.007825	O = 15.994915
C = 12.000000	^{35}Cl = 34.968853
^{13}C = 13.003355	^{37}Cl = 36.965903
F = 18.9984	

S = internal/recovery standard

LDC #: 17590C21
SDG #: F1100142

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration
SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD) LCS = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: 726231 9 LCS

Compound	Spike Added (PS/S)		Spiked Sample Concentration (PS/S)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
2,3,7,8-TCDD	20	NA	23.5	NA	117	117				
1,2,3,7,8-PeCDD	100		118		118	118				
1,2,3,4,7,8-HxCDD			113		113	113				
1,2,3,4,7,8,9-HpCDF			121		121	121				
OCDF	200		246		123	123				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 17590e21
SDG #: F1100142

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: 9

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

RRF = Relative Response Factor (average) from the initial calibration

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

Example:

Sample I.D. 3 , 9 :

Conc. = $\frac{(1383285)(4000)(\quad)}{(1730899)(\cancel{2.45}\ 3.33)(1.002)(0.9\%)}$

= 9.82 pg/g

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Revision 1

LDC Report# 17590D21

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Parcel 4A/4B Sampling Event

Collection Date: September 10, 2007

LDC Report Date: October 29, 2007

Matrix: Soil/Water

Parameters: Dioxins/Dibenzofurans

Validation Level: EPA Level III

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I110258

Sample Identification

TSB-BR-05-0'
TSB-BR-04-0'
TSB-BR-04-0'(FD)
TSB-BJ-03-0'
TSB-BJ-03-0'(FD)
TSB-BJ-05-0'
TSB-BR-01-0'
TSB-BJ-04-0'
TSB-BR-02-0'
TSB-BR-03-0'
RINSATE 3
TSB-BR-05-0'MS
TSB-BR-05-0'MSD

Introduction

This data review covers 12 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.

J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.

J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required daily frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

III. Initial Calibration

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

IV. Routine Calibration (Continuing)

Routine calibration was performed at the required frequencies.

All of the routine calibration percent differences (%D) between the initial calibration RRF and the routine calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks.

Sample "RINSATE 3" was identified as a rinsate. No polychlorinated dioxin/dibenzofuran contaminants were found in this blank.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Although the MS/MSD and relative percent differences (RPD) were not within QC limits for some compounds, the MS/MSD and LCS percent recoveries (%R) were within QC limits and no data were qualified.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. The percent recoveries (%R) were within the QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
7260528LCS	1,2,3,7,8,9-HxCDD	207 (70-130)	All water samples in SDG F7I1120258	J+ (all detects)	P
	2,3,7,8-TCDF	131 (70-130)		J+ (all detects)	
	1,2,3,7,8-PeCDF	132 (70-130)		J+ (all detects)	
	1,2,3,6,7,8-HxCDF	132 (70-130)		J+ (all detects)	
	2,3,4,6,7,8-HxCDF	190 (70-130)		J+ (all detects)	
	1,2,3,7,8,9-HxCDF	253 (70-130)		J+ (all detects)	
	1,2,3,4,7,8,9-HpCDF	236 (70-130)		J+ (all detects)	

VIII. Regional Quality Assurance and Quality Control

Not applicable.

*IX. Internal Standards

All internal standard recoveries were within QC limits with the following exceptions:

Sample	Internal Standards	%R (Limits)	Compound	Flag	A or P
TSB-BR-04-0'	^{13}C-OCDD	34 (40-135)	OCDD	J (all detects)	P
				UJ (all non-detects)	
			OCDF	J (all detects)	
				UJ (all non-detects)	
RINSATE 3	^{13}C-1,2,3,6,7,8-HxCDD	31 (40-135)	1,2,3,4,7,8-HxCDD	J (all detects)	P
	^{13}C-1,2,3,4,6,7,8-HpCDF	29 (40-135)	1,2,3,6,7,8-HxCDD	UJ (all non-detects)	
	^{13}C-1,2,3,4,7,8-HxCDF	27 (40-135)	1,2,3,7,8,9-HxCDD		
			1,2,3,4,6,7,8-HpCDF		
			1,2,3,4,7,8,9-HpCDF		
			1,2,3,4,7,8-HxCDF		
			1,2,3,6,7,8-HxCDF		
			2,3,4,6,7,8-HxCDF		
			1,2,3,7,8,9-HxCDF		

*Removed minus sign from the Flag in table above.

X. Target Compound Identifications

Raw data were not reviewed for this SDG.

XI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XII. System Performance

Raw data were not reviewed for this SDG.

XIII. Overall Assessment of Data

Data flags have been summarized at the end of the report if data has been qualified.

XIV. Field Duplicates

Samples TSB-BR-04-0' and TSB-BR-04-0'(FD) and samples TSB-BJ-03-0' and TSB-BJ-03-0'(FD) were identified as field duplicates. No polychlorinated dioxin/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/g)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)				
2,3,7,8-TCDD	1.1	0.88	22 (≤50)	-	-	-
1,2,3,6,7,8-HxCDD	2.6	3.5	30 (≤50)	-	-	-
1,2,3,4,6,7,8-HpCDD	6.6	9.4	35 (≤50)	-	-	-
OCDD	6.0	15	86 (≤50)	-	J (all detects)	A
2,3,7,8-TCDF	17	19	11 (≤50)	-	-	-
1,2,3,7,8-PeCDF	33	36	9 (≤50)	-	-	-
2,3,4,7,8-PeCDF	16	18	12 (≤50)	-	-	-
1,2,3,4,7,8-HxCDF	36	47	27 (≤50)	-	-	-
1,2,3,6,7,8-HxCDF	31	41	28 (≤50)	-	-	-
2,3,4,6,7,8-HxCDF	7.5	9.8	27 (≤50)	-	-	-

*Indicates change as the result of report review.

Compound	Concentration (pg/g)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)				
1,2,3,7,8,9-HxCDF	4.9	5.2	6 (≤50)	-	-	-
1,2,3,4,6,7,8-HpCDF	60	97	47 (≤50)	-	-	-
1,2,3,4,7,8,9-HpCDF	29	42	37 (≤50)	-	-	-
OCDF	110	200	58 (≤50)	-	-	-
1,2,3,7,8-PeCDD	2.2U	3.2	-	1.0 pg/g (≤2.2)	-	-
1,2,3,7,8,9-HxCDD	1.6U	2.9	-	1.3 pg/g (≤1.6)	-	-

Isotope	Concentration (pg/g)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
2,3,7,8-TCDD	1.9	1.9	0 (≤50)	-	-	-
1,2,3,7,8-PeCDD	7.6	7.3	4 (≤50)	-	-	-
1,2,3,4,7,8-HxCDD	4.4	4.0	10 (≤50)	-	-	-
1,2,3,6,7,8-HxCDD	9.8	8.2	18 (≤50)	-	-	-
1,2,3,7,8,9-HxCDD	6.5	5.6	15 (≤50)	-	-	-
1,2,3,4,6,7,8-HpCDD	27	22	20 (≤50)	-	-	-
OCDD	31	20	43 (≤50)	-	-	-
2,3,7,8-TCDF	56	52	7 (≤50)	-	-	-
1,2,3,7,8-PeCDF	110	96	14 (≤50)	-	-	-
2,3,4,7,8-PeCDF	56	48	15 (≤50)	-	-	-
1,2,3,4,7,8-HxCDF	170	130	27 (≤50)	-	-	-
1,2,3,6,7,8-HxCDF	130	110	17 (≤50)	-	-	-

*Indicates change as the result of report review.

Isotope	Concentration (pg/g)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
2,3,4,6,7,8-HxCDF	31	26	18 (≤50)	-	-	-
1,2,3,7,8,9-HxCDF	16	14	13 (≤50)	-	-	-
1,2,3,4,6,7,8-HpCDF	350	260	30 (≤50)	-	-	-
1,2,3,4,7,8,9-HpCDF	130	110	17 (≤50)	-	-	-
OCDF	650	500	26 (≤50)	-	-	-

*Indicates change as the result of report review.

*BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Data Qualification Summary - SDG F7I110258

SDG	Sample	Compound	Flag	A or P	Reason
F7I110258	RINSATE 3	1,2,3,7,8,9-HxCDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8,9-HpCDF	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P	Laboratory control samples (%R)
*F7I110258	TSB-BR-04-0'	OCDD OCDF	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Internal standards (%R)
*F7I110258	RINSATE 3	1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	J (all detects) UJ (all non-detects)	P	Internal standards (%R)
F7I110258	TSB-BR-04-0' TSB-BR-04-0'(FD)	OCDD	J (all detects)	A	Field duplicates (RPD)

BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG F7I110258

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG F7I110258

No Sample Data Qualified in this SDG

*Indicates change as the result of report review.

LDC #: 17590D21 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/15/07
SDG #: F7I110258 Level III Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: [signature]
2nd Reviewer: [signature]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/10/07
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Routine calibration	A	
V.	Blanks	A	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	SW	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	SW	
X.	Target compound identifications	N	
XI.	Compound quantitation and CRQLs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	D=2+3, 4+5
XV.	Field blanks	ND	R=12

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:
All soils except #12

1	TSB-BR-05-0'	11	TSB-BR-03-0'	21	T=60 8MB	31	W
2	TSB-BR-04-0'	12	RINSATE 3 W	22	T=60 8MB	32	
3	TSB-BR-04-0'(FD)	13	TSB-BR-05-0'MS	23	T=67 8MB	33	
4	TSB-BJ-03-0'	14	TSB-BR-05-0'MSD	24		34	
5	TSB-BJ-03-0'(FD)	15		25		35	
6	TSB-BJ-05-0'	16		26		36	
7	~~TSB-BJ-05-10'~~	17		27		37	
8	TSB-BR-01-0'	18		28		38	
9	TSB-BJ-04-0'	19		29		39	
10	TSB-BR-02-0'	20		30		40	

Notes:

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes:_____

LDC #: 17590021
SDG #: F7100258

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 2

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		13/14	F	( )	( )	30 (≤25)	1	No Qual
			G	( )	50 (70-130)	59 (↓)		↓
			H	160 (70-130)	143 ( )	( )		(MS/MSD or LCS dr)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		

LDC #: 17590B21
SDG #: F7110258

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: Q
2nd Reviewer: ✓

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?
(Y) N N/A Was a LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y (N) N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	Date	Lab ID/Reference	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		T260528LCS	E	207 (70-130)	( )	( )	All Hols.	J+ dets/P
			H	131 ( )	( )	( )	T260528MB	
			I	132 ( )	( )	( )		
			L	132 ( )	( )	( )		
			M	190 ( )	( )	( )		
			N	253 ( )	( )	( )		
			P	236 ( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		

LDC #: FC590D21
SDG #: FT1110258

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: CT
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Are all internal standard recoveries were within the 40-135% criteria?
(Y) N N/A Was the S/N ratio all internal standard peaks ≥ 10?

#	Date	Lab ID/Reference	Internal Standard	% Recovery (Limit: 40-135%)	Qualifications
		2	I	34 (40-135)	J (M+) (E-Q)
		12	F	31 ( )	(C→E)
			G	29 ( )	(O, P)
			E	27 ( )	(K→N)
		14 (MSD)	I	38 (40-135)	No Qual

	Internal Standards	Check Standard Used		Recovery Standards	Check Standard Used
A.	^{13}C-2,3,7,8-TCDF		K.	^{13}C-1,2,3,4-TCDD	
B.	^{13}C-2,3,7,8-TCDD		L.	^{13}C-1,2,3,7,8,9-HxCDD	
C.	^{13}C-1,2,3,7,8-PeCDF		M.		
D.	^{13}C-1,2,3,7,8-PeCDD		N.		
E.	^{13}C-1,2,3,6,7,8-HxCDF		O.		
F.	^{13}C-1,2,3,6,7,8-HxCDD		P.		
G.	^{13}C-1,2,3,4,6,7,8-HpCDF		Q.		
H.	^{13}C-1,2,3,4,6,7,8-HpCDD		R.		
I.	^{13}C-OCDD		T		

LDC#:17590D21
SDG#: F7I110258

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: 9
2nd Reviewer: 9

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (pg/g)		RPD or D	(≤ 50)
	2	3		
A	1.1	0.88	22	
D	2.6	3.5	30	
F	6.6	9.4	35	
G	6.0	15	86	Jdets/A
H	17	19	11	
I	33	36	9	
J	16	18	12	
K	36	47	27	
L	31	41	28	
M	7.5	9.8	27	
N	4.9	5.2	6	
O	60	97	47	
P	29	42	37	
Q	110	200	58	
B	2.2U	3.2	1.0 (< 2.2)	
E	1.6U	2.9	1.3 (< 1.6)	

Compound	Concentration (pg/g)		RPD	(≤ 50)
	4	5		
A	1.9	1.9	0	
B	7.6	7.3	4	
C	4.4	4.0	10	
D	9.8	8.2	18	
E	6.5	5.6	15	
F	27	22	20	
G	31	20	43	

LDC#:17590D21
SDG#: F7I110258

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer:
2nd Reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (pg/g)		RPD	
	4	5		
H	56	52	7	
I	110	96	14	
J	56	48	15	
K	170	130	27	
L	130	110	17	
M	31	26	18	
N	16	14	13	
O	350	260	30	
P	130	110	17	
Q	650	500	26	