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

October 25, 2007

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

Dear Ms. Barajas-Albalawi

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on October 8, 2007. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 17590:

SDG #	Fraction
F7I060284, F7I070120, F7I100142, F7I110258	Volatiles, Semivolatiles, Chlorinated Pesticides, Metals,Wet Chemistry, Gasoline Range Organics, Diesel Range Organics, Polynuclear Aromatic Hydrocarbons, Dioxins/Dibenzofurans,

The data validation was performed under EPA Level III and Level IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
- USEPA, Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Diobenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998

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

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

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29,073 pages-CD Due 10/25/07

Attachment 1

80/20

LDC #17590 (ERM-Sacramento / BEC Parcel A & B)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		SVOA (8270C)		Pest. (8081A)		Metals & Hg (SW846)		GRO (8015)		DRO (8015)		Dioxins (8290)		PAHs (8310)		Bromide Bromine Chlorate		Chloride Chloride Fluoride		NO_3 NO_2 O-OP_4		SO_4 (300.0)		CLO_4 (314.0)		TPH/ O&G (1664A)							
Matrix:	Water/Soil			W	S	W	S*	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	F7I060284	10/08/07	10/25/07	0	11	0	11	0	11	0	11	0	11	0	12	0	5	0	11	0	11	0	11	0	11	0	11	0	11	0	11						
B	F7I070120	10/08/07	10/25/07	8	17	1	17	1	17	1	17	1	17	1	19	1	8	1	17	1	17	1	17	1	17	1	17	1	17	1	17						
C	F7I100142	10/08/07	10/25/07	9	5	1	4	1	4	1	4	1	4	1	4	0	2	1	4	1	4	1	4	1	4	1	4	1	4	1	4						
C	F7I100142	10/08/07	10/25/07	0	14	0	14	0	14	0	14	0	14	0	14	0	7	0	14	0	14	0	14	0	14	0	14	0	14	0	14						
D	F7I110258	10/08/07	10/25/07	10	18	1	18	1	22	1	18	1	18	1	18	1	10	1	18	1	18	1	18	1	18	1	18	1	18	1	18						
Total	B/LR			27	65	3	64	3	68	3	64	3	64	3	67	2	32	3	64	3	64	3	64	3	64	3	64	3	64	3	64	0	0	0	0	0	937

Shaded cells indicate Level IV validation (all other cells are Level I III validation). These sample counts do not include MS/MSD, and DUPs

17590ST.wpd

BRC Parcel 4A/4BSampling Event
Data Validation Reports
LDC# 17590

Volatiles

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 17, 2007

Matrix: Soil

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I060284

TSB-AR-01-0'
TSB-AR-01-0'-Dup
TSB-AR-01-10'
TSB-AR-02-0'
TSB-AR-02-10'
TSB-AR-04-0'
TSB-AR-04-10'
TSB-AR-05-0'
TSB-AR-05-10'
TSB-AR-07-0'
TSB-AR-07-10'
TSB-AR-04-0'MS
TSB-AR-04-0'MSD

Introduction

This data review covers 13 soil 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.

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. 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 samples in SDG F7I060284	J (all detects) UJ (all non-detects)	A
8/9/07	Ethanol	0.00236 (≥0.05)	All samples in SDG F7I060284	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
9/16/07 (FCAL6561)	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	36.06620 45.30149 35.03100 35.46326 42.57542 44.35637 41.55712 39.54117 38.50176 42.59327	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10' TSB-AR-04-0'MS TSB-AR-04-0'MSD 7260465MB	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 (FCAL6596)	Bromomethane Isopropylbenzene n-Butylbenzene	40.02851 27.92578 25.11695	TSB-AR-05-0' 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 27.34527 32.85444 26.97152 34.30185	TSB-AR-05-0' 7261455MB	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) 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.

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
9/16/07 (FCAL6560)	Acetonitrile	0.02589 (≥0.05)	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10' TSB-AR-04-0'MS TSB-AR-04-0'MSD 7260465MB	J (all detects) UJ (all non-detects)	A
9/16/07 (FCAL6561)	Ethanol	0.00280 (≥0.05)	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10' TSB-AR-04-0'MS TSB-AR-04-0'MSD 7260465MB	J (all detects) UJ (all non-detects)	A
9/17/07 (FCAL6596)	Acetonitrile	0.02645 (≥0.05)	TSB-AR-05-0' 7261455MB	J (all detects) UJ (all non-detects)	A
9/17/07 (FCAL6595)	Ethanol	0.00314 (≥0.05)	TSB-AR-05-0' 7261455MB	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-05-0'

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:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TSB-AR-05-0'	Toluene 1,2,4-Trimethylbenzene	0.22 ug/Kg 0.41 ug/Kg	5.1U ug/Kg 5.1U ug/Kg

No field blanks were identified in this SDG.

VI. Surrogate Spikes

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

VII. 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 percent recoveries (%R) were not within QC limits for one compound, the LCS percent recovery (%R) was within QC limits and no data were qualified.

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

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-01-0' and TSB-AR-01-0'-Dup were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-AR-01-0'	TSB-AR-01-0'-Dup			
Acetone	16	15	1 (≤21)	-	-
Toluene	0.26	0.25	0.01 (≤5.3)	-	-
1,2,4-Trimethylbenzene	5.2U	0.24	4.96 (≤5.3)	-	-

BRC Parcel 4A/4B Sampling Event
Volatiles - Data Qualification Summary - SDG F7I060284

SDG	Sample	Compound	Flag	A or P	Reason
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Acetonitrile Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	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)	A	Continuing calibration (%D)
F7I060284	TSB-AR-05-0'	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)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Acetonitrile Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)

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

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
F7I060284	TSB-AR-05-0'	Toluene 1,2,4-Trimethylbenzene	5.1U ug/Kg 5.1U ug/Kg	A

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

No Sample Data Qualified in this SDG

LDC #: 17590A1
SDG #: F7I060284
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/15/07
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	A	Sampling dates: 9/05/07
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	% RSD r
IV.	Continuing calibration /ICV	SW	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 1, r
XVII.	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: Soil

+ 1	TSB-AR-01-0'	+ 11	TSB-AR-07-10'	- 21	726048 MB	31	
+ 2	TSB-AR-01-0'-Dup	12	TSB-AR-04-0'MS	+ 22 r	726145	32	
+ 3	TSB-AR-01-10'	13	TSB-AR-04-0'MSD	23		33	
+ 4	TSB-AR-02-0'	14		24		34	
+ 5	TSB-AR-02-10'	15		25		35	
+ 6	TSB-AR-04-0'	16		26		36	
+ 7	TSB-AR-04-10'	17		27		37	
+ 8 r	TSB-AR-05-0'	18		28		38	
+ 9	TSB-AR-05-10'	19		29		39	
+ 10	TSB-AR-07-0'	20		30		40	

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-Dimethylpentane
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-Dimethyl pentane
YYYY. 2,2,3-Trimethyl butane

LDC #: 17590A1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Reviewer: JVG
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".

(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 + Blks	J/UJ/A
	8/09/07	ICAL -F	WWW		0.00236	↓	↓

INICAL.1SB

LDC #: 17590A1
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JVG
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".

(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
	9/6/07	FCAL6560	~~EEEE~~		0.02589	All except 8, 7260468 MB	J/UJ/A
		FCAL6561	WWW		0.00280		
			XXXX (+)	36.06620			J+ dets/A
			RRRR (+)	45.30149			
			YYYY (+)	35.03100			
			SSSS (+)	35.46326			
			TTTT (+)	42.57542			
			PPPP (+)	44.35637			
			UUUU (+)	41.55717			
			VVVV (+)	39.54117			
			QQQQ (+)	38.50176			
			OOO (+)	42.59377			
	9/7/07	FCAL6596	B (+)	40.02857		8, 7261455 MB	J+ dets/A
			VV (+)	27.92578			
			III (+)	25.11695			
			EEEE		0.02645		J/UJ/A
		FCAL6595	WWW		0.00314		
			WWW (+)	33.03521			J+ dets/A
			RRRR (+)	30.95347			
			TTTT (+)	27.34527			
			PPPP (+)	32.85484			
			VVVV (+)	26.97157			
			OOO (+)	34.30185			

LDC #: 17590A1

SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

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 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: 8

Compound	Blank ID	Sample Identification								
	726455MB	8								
Methylene chloride										
Acetone	7.2									
JJJ	0.17									
FFF	0.13									
HHH	0.21									
CC	0.29	0.22/5.1U								
CRQL DDD	0.35	0.41/ ↓								

Blank analysis date:

Conc. units: Associated Samples:

Compound	Blank ID	Sample Identification								
Methylene chloride										
Acetone										
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 #: 17590 A1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: JV6
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".

(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
		12/13	HH	8.8 (10-150)	8.5 (10-150)	( )	6	No qual
				( )	( )	( )		(LCS in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	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 #: 17590A1
SDG #: see Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JVG
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".

[✓ 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
		7260468 LCS	F	157 (60-146)	( )	( )	All except 8,	No qual (MS/MSD in)
			FF	125 (84-121)	( )	( )	7260468 MB	
			VV	126 (82-123)	( )	( )		
			UU	126 (83-115)	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
		7261455 LCS	UU	116 (83-115)	( )	( )	8, 7261455 MB	
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 17590A1
SDG #: Surface

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: JVL
2nd reviewer: [signature]

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 (ug/kg)		RPD
	1	✓	
F	16	15	1 (≤21 Diff)
CC	0.26	0.25	0.01 (≤5.3 Diff)
DDD	5.2U	0.24	4.96 ↓

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Laboratory Data Consultants, Inc.
Data Validation Report

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

Collection Date: September 6, 2007

LDC Report Date: October 17, 2007

Matrix: Soil/Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I070120

TSB-AR-08-0'	TRIP BLANK(021)
TSB-AR-08-10'	TRIP BLANK(022)
TSB-AR-11-0'	TRIP BLANK(023)
TSB-AR-11-0'-Dup	TRIP BLANK(024)
TSB-AR-11-10'	TRIP BLANK(025)
TSB-AR-14-0'	TSB-AR-13-0'MS
TSB-AR-14-10'	TSB-AR-13-0'MSD
TSB-AR-13-0'	
TSB-AR-13-10'	
TSB-AR-10-0'	
TSB-AR-10-10'	
TSB-AR-9-0'	
TSB-AR-9-10'	
TSB-AR-12-0'	
TSB-AR-12-10'	
TSB-AR-3-0'	
TSB-AR-3-10'	
RINSATE 1	
TRIP BLANK(019)	
TRIP BLANK(020)	

Introduction

This data review covers 19 soil samples and 8 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.

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. 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
9/5/07	1,2-Dibromo-3-chloropropane	0.04952 (≥0.05)	All water samples in SDG F7I070120	J (all detects) UJ (all non-detects)	A
9/17/07	Ethanol	0.00640 (≥0.05)	All water samples in SDG F7I070120	J (all detects) UJ (all non-detects)	A
9/12/07	Acetonitrile	0.02504 (≥0.05)	All soil samples in SDG F7I070120	J (all detects) UJ (all non-detects)	A
8/9/07	Ethanol	0.00236 (≥0.05)	All soil samples in SDG F7I070120	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-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' TSB-AR-13-0'MS TSB-AR-13-0'MSD 7261455MB	J+ (all detects) J+ (all detects) J+ (all detects)	A
9/17/07 (FCAL6595)	Ethanol 2-Methylhexane 2,3-Dimethylpentane 3-Ethylpentane 1,3,5-Trichlorobenzene 2,4-Dimethylpentane	33.03521 27.34527 32.85444 26.97152 34.30185 30.95342	TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' TSB-AR-13-0'MS TSB-AR-13-0'MSD 7261455MB	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A
9/16/07 (FCAL6561)	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 2,2-Dimethylpentane	45.30149 35.03100 35.46326 42.57542 44.35637 41.45712 39.54117 38.50176 42.53927 36.06620	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' 7260468MB	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 F7I070120	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.

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-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' TSB-AR-13-0'MS TSB-AR-13-0'MSD 7261455MB	J (all detects) UJ (all non-detects)	A
9/17/07 (FCAL6595)	Ethanol	0.00314 (≥0.05)	TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' TSB-AR-13-0'MS TSB-AR-13-0'MSD 7261455MB	J (all detects) UJ (all non-detects)	A
9/16/07 (FCAL6560)	Acetonitrile	0.02589 (≥0.05)	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' 7260468MB	J (all detects) UJ (all non-detects)	A
9/16/07 (FCAL6561)	Ethanol	0.00280 (≥0.05)	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' 7260468MB	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 F7I070120	J (all detects) UJ (all non-detects)	A

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/17/07 (LCAL5901)	Ethanol	0.00696 (≥0.05)	All water samples in SDG F7I070120	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-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10'

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:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TSB-AR-13-0'	Acetone Toluene 1,2,4-Trimethylbenzene	8.0 ug/Kg 0.46 ug/Kg 0.38 ug/Kg	20U ug/Kg 5.1U ug/Kg 5.1U ug/Kg
TSB-AR-13-10'	Acetone Toluene 1,2,4-Trimethylbenzene	6.4 ug/Kg 0.39 ug/Kg 0.39 ug/Kg	21U ug/Kg 5.3U ug/Kg 5.3U ug/Kg
TSB-AR-10-0'	Toluene 1,2,4-Trimethylbenzene	0.20 ug/Kg 0.43 ug/Kg	5.2U ug/Kg 5.2U ug/Kg
TSB-AR-10-10'	Acetone Toluene 1,2,4-Trimethylbenzene	7.4 ug/Kg 0.51 ug/Kg 0.34 ug/Kg	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg
TSB-AR-9-0'	1,2,4-Trimethylbenzene	0.38 ug/Kg	5.1U ug/Kg

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TSB-AR-9-10'	Acetone Toluene 1,2,4-Trimethylbenzene	4.5 ug/Kg 0.26 ug/Kg 0.36 ug/Kg	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg
TSB-AR-12-0'	Acetone Toluene 1,2,4-Trimethylbenzene	4.5 ug/Kg 0.42 ug/Kg 0.37 ug/Kg	21U ug/Kg 5.1U ug/Kg 5.1U ug/Kg
TSB-AR-12-10'	Acetone Toluene 1,2,4-Trimethylbenzene	7.7 ug/Kg 0.35 ug/Kg 0.38 ug/Kg	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg
TSB-AR-3-0'	Acetone Toluene 1,2,4-Trimethylbenzene	12 ug/Kg 0.66 ug/Kg 0.38 ug/Kg	20U ug/Kg 5.0U ug/Kg 5.0U ug/Kg
TSB-AR-3-10'	Acetone Toluene 1,2,4-Trimethylbenzene	8.3 ug/Kg 0.45 ug/Kg 0.38 ug/Kg	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg

Samples TRIP BLANK(019), TRIP BLANK(020), TRIP BLANK(021), TRIP BLANK(022), TRIP BLANK(023), TRIP BLANK(024), and TRIP BLANK(025) 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(019)	9/6/07	Methylene chloride Acetone	0.28 ug/L 4.0 ug/L	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TRIP BLANK(020)	9/6/07	Acetone	5.7 ug/L	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1
TRIP BLANK(021)	9/6/07	Methylene chloride Toluene	0.64 ug/L 0.21 ug/L	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1
TRIP BLANK(022)	9/6/07	Acetone	4.6 ug/L	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TRIP BLANK(023)	9/6/07	Acetone Toluene	5.6 ug/L 0.13 ug/L	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1
TRIP BLANK(024)	9/6/07	Acetone	5.3 ug/L	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1
TRIP BLANK(025)	9/6/07	Acetone	4.8 ug/L	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1

Sample "RINSATE 1" 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 1	9/6/07	Acetone Chloroform Bromodichloromethane	3.5 ug/L 5.5 ug/L 5.2 ug/L	All soil samples in SDG F7I070120

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
RINSATE 1	Acetone	3.5 ug/L	3.5U ug/L
TSB-AR-08-0'	Acetone Toluene	8.3 ug/Kg 0.35 ug/Kg	21U ug/Kg 5.1U ug/Kg
TSB-AR-08-10'	Acetone Toluene	13 ug/Kg 0.29 ug/Kg	21U ug/Kg 5.3U ug/Kg
TSB-AR-11-0'	Acetone Toluene	10 ug/Kg 0.33 ug/Kg	21U ug/Kg 5.2U ug/Kg
TSB-AR-11-0'-Dup	Acetone	9.3 ug/Kg	21U ug/Kg
TSB-AR-11-10'	Acetone	11 ug/Kg	21U ug/Kg
TSB-AR-14-0'	Acetone Toluene	8.0 ug/Kg 0.52 ug/Kg	21U ug/Kg 5.2U ug/Kg
TSB-AR-14-10'	Acetone Toluene	11 ug/Kg 0.35 ug/Kg	21U ug/Kg 5.3U ug/Kg
TSB-AR-13-0'	Acetone Toluene	8.0 ug/Kg 0.46 ug/Kg	20U ug/Kg 5.1U ug/Kg
TSB-AR-13-10'	Acetone Toluene	6.4 ug/Kg 0.39 ug/Kg	21U ug/Kg 5.3U ug/Kg
TSB-AR-10-0'	Toluene	0.20 ug/Kg	5.2U ug/Kg
TSB-AR-10-10'	Acetone Toluene	7.4 ug/Kg 0.51 ug/Kg	21U ug/Kg 5.2U ug/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
TSB-AR-9-10'	Acetone Toluene	4.5 ug/Kg 0.26 ug/Kg	21U ug/Kg 5.2U ug/Kg
TSB-AR-12-0'	Acetone Toluene	4.5 ug/Kg 0.42 ug/Kg	20U ug/Kg 5.1U ug/Kg
TSB-AR-12-10'	Acetone Toluene	7.7 ug/Kg 0.35 ug/Kg	21U ug/Kg 5.2U ug/Kg
TSB-AR-3-0'	Acetone Toluene	12 ug/Kg 0.66 ug/Kg	20U ug/Kg 5.0U ug/Kg
TSB-AR-3-10'	Acetone Toluene	8.3 ug/Kg 0.45 ug/Kg	21U ug/Kg 5.2U ug/Kg

VI. Surrogate Spikes

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

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

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-11-0' and TSB-AR-11-0'-Dup were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-AR-11-0'	TSB-AR-11-0'-Dup			
Acetone	10	9.3	0.7 (≤21)	-	-
Toluene	0.33	5.1U	4.77 (≤5.2)	-	-
1,2,4-Trimethylbenzene	0.25	5.1U	4.95 (≤5.2)	-	-

BRC Parcel 4A/4B Sampling Event
Volatiles - Data Qualification Summary - SDG F7I070120

SDG	Sample	Compound	Flag	A or P	Reason
F7I070120	RINSATE 1 TRIP BLANK(019) TRIP BLANK(020) TRIP BLANK(021) TRIP BLANK(022) TRIP BLANK(023) TRIP BLANK(024) TRIP BLANK(025)	1,2-Dibromo-3-chloropropane Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10'	Acetonitrile Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
F7I070120	TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10'	Bromomethane Isopropylbenzene n-Butylbenzene Ethanol 2-Methylhexane 2,3-Dimethylpentane 3-Ethylpentane 1,3,5-Trichlorobenzene 2,4-Dimethylpentane	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)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10'	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 2,2-Dimethylpentane	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)

SDG	Sample	Compound	Flag	A or P	Reason
F7I070120	RINSATE 1 TRIP BLANK(019) TRIP BLANK(020) TRIP BLANK(021) TRIP BLANK(022) TRIP BLANK(023) TRIP BLANK(024) TRIP BLANK(025)	Bromomethane Carbon disulfide	J+ (all detects) J+ (all detects)	A	Continuing calibration (%D)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10'	Acetonitrile Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
F7I070120	RINSATE 1 TRIP BLANK(019) TRIP BLANK(020) TRIP BLANK(021) TRIP BLANK(022) TRIP BLANK(023) TRIP BLANK(024) TRIP BLANK(025)	1,2-Dibromo-3-chloropropane Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)

BRC Parcel 4A/4B Sampling Event
Volatiles - Laboratory Blank Data Qualification Summary - SDG F7I070120

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
F7I070120	TSB-AR-13-0'	Acetone Toluene 1,2,4-Trimethylbenzene	20U ug/Kg 5.1U ug/Kg 5.1U ug/Kg	A
F7I070120	TSB-AR-13-10'	Acetone Toluene 1,2,4-Trimethylbenzene	21U ug/Kg 5.3U ug/Kg 5.3U ug/Kg	A
F7I070120	TSB-AR-10-0'	Toluene 1,2,4-Trimethylbenzene	5.2U ug/Kg 5.2U ug/Kg	A

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
F7I070120	TSB-AR-10-10'	Acetone Toluene 1,2,4-Trimethylbenzene	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg	A
F7I070120	TSB-AR-9-0'	1,2,4-Trimethylbenzene	5.1U ug/Kg	A
F7I070120	TSB-AR-9-10'	Acetone Toluene 1,2,4-Trimethylbenzene	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg	A
F7I070120	TSB-AR-12-0'	Acetone Toluene 1,2,4-Trimethylbenzene	21U ug/Kg 5.1U ug/Kg 5.1U ug/Kg	A
F7I070120	TSB-AR-12-10'	Acetone Toluene 1,2,4-Trimethylbenzene	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg	A
F7I070120	TSB-AR-3-0'	Acetone Toluene 1,2,4-Trimethylbenzene	20U ug/Kg 5.0U ug/Kg 5.0U ug/Kg	A
F7I070120	TSB-AR-3-10'	Acetone Toluene 1,2,4-Trimethylbenzene	21U ug/Kg 5.2U ug/Kg 5.2U ug/Kg	A

BRC Parcel 4A/4B Sampling Event
Volatiles - Field Blank Data Qualification Summary - SDG F7I070120

SDG	Sample	Compound	Modified Final Concentration	A or P
F7I070120	RINSATE 1	Acetone	3.5U ug/L	A
F7I070120	TSB-AR-08-0'	Acetone Toluene	21U ug/Kg 5.1U ug/Kg	A
F7I070120	TSB-AR-08-10'	Acetone Toluene	21U ug/Kg 5.3U ug/Kg	A
F7I070120	TSB-AR-11-0'	Acetone Toluene	21U ug/Kg 5.2U ug/Kg	A
F7I070120	TSB-AR-11-0'-Dup	Acetone	21U ug/Kg	A
F7I070120	TSB-AR-11-10'	Acetone	21U ug/Kg	A

SDG	Sample	Compound	Modified Final Concentration	A or P
F7I070120	TSB-AR-14-0'	Acetone Toluene	21U ug/Kg 5.2U ug/Kg	A
F7I070120	TSB-AR-14-10'	Acetone Toluene	21U ug/Kg 5.3U ug/Kg	A
F7I070120	TSB-AR-13-0'	Acetone Toluene	20U ug/Kg 5.1U ug/Kg	A
F7I070120	TSB-AR-13-10'	Acetone Toluene	21U ug/Kg 5.3U ug/Kg	A
F7I070120	TSB-AR-10-0'	Toluene	5.2U ug/Kg	A
F7I070120	TSB-AR-10-10'	Acetone Toluene	21U ug/Kg 5.2U ug/Kg	A
F7I070120	TSB-AR-9-10'	Acetone Toluene	21U ug/Kg 5.2U ug/Kg	A
F7I070120	TSB-AR-12-0'	Acetone Toluene	20U ug/Kg 5.1U ug/Kg	A
F7I070120	TSB-AR-12-10'	Acetone Toluene	21U ug/Kg 5.2U ug/Kg	A
F7I070120	TSB-AR-3-0'	Acetone Toluene	20U ug/Kg 5.0U ug/Kg	A
F7I070120	TSB-AR-3-10'	Acetone Toluene	21U ug/Kg 5.2U ug/Kg	A

LDC #: 17590B1
SDG #: F7I070120
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/16/07
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	A	Sampling dates: 9/06/07
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	% RSD r
IV.	Continuing calibration	SW	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 3, 4
XVII.	Field blanks	SW	R = 18 TB = 19 - 25

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: Soil + Water

1	TSB-AR-08-0'	S	11	TSB-AR-10-10'	S	21	TRIP BLANK(021)	W	31	726 0468	MB
2	TSB-AR-08-10'		12	TSB-AR-9-0'		22	TRIP BLANK(022)		32	726 1126	
3	TSB-AR-11-0'	D	13	TSB-AR-9-10'		23	TRIP BLANK(023)		33	726 1455	
4	TSB-AR-11-0'-Dup	D	14	TSB-AR-12-0'		24	TRIP BLANK(024)		34		
5	TSB-AR-11-10'		15	TSB-AR-12-10'		25	TRIP BLANK(025)		35		
6	TSB-AR-14-0'		16	TSB-AR-3-0'		26	TSB-AR-13-0'MS	S	36		
7	TSB-AR-14-10'		17	TSB-AR-3-10'		27	TSB-AR-13-0'MSD		37		
8	TSB-AR-13-0'		18	RINSATE 1	W	28			38		
9	TSB-AR-13-10'		19	TRIP BLANK(019)		29			39		
10	TSB-AR-10-0'		20	TRIP BLANK(020)		30			40		

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 B1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration

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

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
	9/05/07	ICAL - L	MM		0.04952	All water + 7261126 MB	J/UJ/A
	9/12/07	ICAL - F	EEEE		0.02504	All soils + 7260468 MB, 7261455 MB	
	8/09/07	ICAL - F	WWW		0.00236	↓	↓
	9/17/07	ICAL - L	WWW		0.00640	All water + 7261126 MB	J/UJ/A

INICAL.1SB

LDC #: 17590 BJ
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 2
Reviewer: TVG
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 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 (+)	40.02 851		8-17, 26, 27, 7261455 MB	J+ dets /A
			VV (+)	27. 92578			
			III (+)	25. 11695			
			EEEE		0. 02645		J/UJ /A
		FCAL 6595	WWW		0. 00314		
			WWW (+)	33.03521			J+ dets /A
			TTTT (+)	27. 34527			
			PPPP (+)	32. 85444			
			VVVV (+)	26. 97152			
			000 (+)	34. 30185			
			RRRR (+)	30. 9534Y			
	9/16/07	FCAL 6560	EEEE		0. 02589	1-7, 7260468 MB	J/UJ /A
		FCAL 6561	WWW		0. 00280		
			RRRR (+)	45, 30149			J+ dets /A
			YYYY (+)	35. 63100			
			SSSS (+)	35. 46326			
			TTTT (+)	42. 5754Y			
			PPPP (+)	44. 35637			
			UUUU (+)	41. 4571Y			
			VVVV (+)	39, 54117			
			QQQQ (+)	38. 50176			
			000 (+)	42. 53927			
			XXXX (+)	36. 06620			

LDC #: 17590 B1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JVG
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".

(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	LCAL5900	B (+)	67.52117		All water + 7261126 MB	J+ det/A
			G (+)	36.67244			
			MM		0.04545		J/uJ/A
	9/17/07	LCAL5901	WWW		0.00696		J/uJ/A

CONCAL.1SB

LDC #: 17590 B1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JVC
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".

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: 8 – 17

Compound	Blank ID	Sample Identification								
	7261455	MB 8	9	10	11	12	13	14	15	16
Methylene chloride										
Acetone	7.2	8.0/20U	6.4/21U		7.4/21U		4.5/21U	4.5/21U	7.7/21U	12/20U
JJJ	0.17									
FFF	0.13									
HHH	0.21									
CC	0.29	0.46/5.1U	0.39/5.3U	0.20/5.2U	0.57/5.2U		0.26/5.2U	0.42/5.1U	0.35/5.2U	0.66/5.0U
CROI DDD	0.35	0.38/↓	0.39/↓	0.43/↓	0.34/↓	0.38/5.1U	0.36/↓	0.37/5.1U	0.38/↓	0.38/↓

Blank analysis date:
Conc. units: Same as above Associated Samples:

Compound	Blank ID	Sample Identification								
	7261455	MB 17								
Methylene chloride										
Acetone	7.2	8.3/21U								
JJJ	0.17									
FFF	0.13									
HHH	0.21									
CC	0.29	0.45/5.2U								
CROI DDD	0.35	0.38/↓								

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 #: 17540 BJ
SDG #: Sq Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

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

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?

TBs = 1-18 (All soils + R)
R = 1-17 (All soils)

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

Compound	TB 19 Blank	TB 20 ID	TB 21 Blank	TB 22 ID	TB 23	TB 24	TB 25	R 18	Sample Identification					
Sampling Date	←		9/06		/07			→	1	2	3	4	5	6
Methylene chloride	0.28		0.64											
Acetone	4.0	5.7		4.6	5.6	5.3	4.8	3.5/U	8.3/21U	13/21U	10/21U	9.3/21U	11/21U	8.0/21U
Chloroform								5.5						
CC			0.21		0.13				0.35/5.1U	0.29/5.3U	0.33/5.2U			0.52/5.2U
P								5.2						
CRQL														

Blank units: **Associated sample units:** (same as above)
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples:

Compound	TB 19 Blank	TB 20 ID	TB 21 Blank	TB 22 ID	TB 23	TB 24	TB 25	R 18	Sample Identification					
Sampling Date	←		9/06		/07			→	7	8	9	10	11	13
Methylene chloride	0.28		0.64											
Acetone	4.0	5.7		4.6	5.6	5.3	4.8	3.5/U	11/21U	8.0/20U	6.4/21U		7.4/21U	4.5/21U
Chloroform								5.5						
CC			0.21		0.13				0.35/5.3U	0.46/5.1U	0.39/5.3U	0.20/5.2U	0.51/5.2U	0.26/5.2U
P								5.2						
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 B1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 2
Reviewer: JVC
2nd Reviewer:

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?

TBs = 1-18 (All Soils + R)
R = 1-17 (All Soils)

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

Compound	TB 19 Blank	TB D 20	TB 21 Blank	TB D 22	TB 23	TB 24	TB 25	R 18	Sample Identification					
Sampling Date	←		9/06		10/7			→	14	15	16	17		
Methylene chloride	0.28		0.64											
Acetone	4.0			4.6	5.6	5.3	4.8	3.5/4	4.5/20 U	7.7/21 U	12/20 U	8.3/21 U		
Chloroform								5.5						
CC			0.21		0.13			5	0.42/5.1 U	0.35/5.2 U	0.66/5.0 U	0.45/5.2 U		
P								5.2						
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 #: 17590B1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: JVC
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".

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-04-01-MS/MSD	HH	8.8 (10-150)	8.5 (10-150)	( )	None	No qual
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
		26/27	HH	2.8 (10-150)	0 (10-150)	( )	16	No qual (LCS in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	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 #: 17590 B1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JVG
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".

(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
		7260468 LCS	E	157 (60-146)	( )	( )	1-7, 7260468 MB	No qual (MS/MSD in)
			FF	125 (84-121)	( )	( )		
			VV	126 (82-123)	( )	( )		
			UU	116 (83-115)	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
		7261126 LCS/D	B	( )	173 (38-140)	85 (20)	All water, 7261126 MB	No qual (LCS or LCSD in)
			F	( )	( )	56 ( )		
			NN	( )	( )	43 ( )		
			KK	160 (71-133)	( )	45 ( )		
			EEEE	( )	( )	25 ( )		
				( )	( )	( )		
				( )	( )	( )		
		7261455 LCS	UU	116 (83-115)	( )	( )	8-17, 7261455 MB	No qual (MS/MSD in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 17590 b1
SDG #: Sw 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 (ug/kg) 3	4	~~(≤50%)~~ RPD
F	10	9.3	0.7 (≤21 Diff)
CC	0.33	5.1 U	4.77 (≤ 5.2 Diff)
DDD	0.25	↓	4.95 ↓

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

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 25, 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

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

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.

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
9/26/07 (FCAL6869)	Ethanol	0.00303 (≥0.05)	TSB-BJ-01-10'RE 7270145MB	J (all detects) UJ (all non-detects)	A

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
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:

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

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
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

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

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
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.

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

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)	-	-

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flags	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup				
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)	-	-

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)

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)

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

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
F7I100142	TSB-AJ-02-10'**	Acetone Toluene	21U ug/Kg 5.1U ug/Kg	A

SDG	Sample	Compound	Modified Final Concentration	A or P
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

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

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 10/18/07
Page: 1 of 1
Reviewer: JV6
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	726 1126 MB	
2	TRIP BLANK(002)		12	TSB-AR-06-10'		22	TSB-BJ-01-0'**		32	726 1455 MB	
3	TRIP BLANK(003)		13	TSB-AJ-01-0'**		23	TSB-BJ-01-10'		33	726 3176 MB	
4	TRIP BLANK(004)		14	TSB-AJ-01-10'**		24	TSB-BJ-01-10'RE		34	727014 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 Cmet

VALIDATION FINDINGS CHECKLIST

Page: 1 of 7
Reviewer: NG
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: NV
2nd Reviewer:

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?		✓		
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
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?	✓			
XI. Target compound identification				
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?	✓			
XII. 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?		✓		
XIII. Tentatively identified compounds (TICs)				
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)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
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 C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

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

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:

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".

Q N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?
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? $r^2 \geq 0.99$
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 + 7261455 MB 7263176 7270145	J/UJ/A
	8/09/07	ICAL-F	WWW		0.00236		
	9/05/07	ICAL-L	MM		0.04952	All water + 7261126 MB	J/UJ/A
	9/17/07	ICAL-L	WWW		0.00640		

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 2
Reviewer: JVC
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".

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, 726145MB	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			
			OOO (+)	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	726176 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			
			OOO (+)	36.09997		✓	✓

LDC #: 17590C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: JVG
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".

(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		0.04525		J/UJ /A
		LCAL5901	WWW		0.00696		

LDC #: 17590 C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JV6
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".

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								
	726317GMB	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

Reviewer: SVL
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".

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: JV6
2nd Reviewer:

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 #: 175901

SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVC

2nd Reviewer:

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

Reviewer: JVZ
2nd Reviewer:

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: JVC
2nd Reviewer:

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: JVG
2nd Reviewer:

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/L
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:

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

Page: 1 of 1
Reviewer: JV6
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".

(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	28 (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: _____

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 (LCSin)
			F	( )	( )	56 ( )		
			NN	( )	( )	43 ( )		
			KK	160 (71-133)	( )	45 ( )		(LCSDin)
			EEEE	( )	( )	25 ( )		
				( )	( )	( )		
				( )	( )	( )		
		7261455 LCS	UU	116 (83-115)	( )	( )	10-13, 7261455 MB	No qual (MS/Din)
				( )	( )	( )		
				( )	( )	( )		
		7263176 LCS	U	116 (74-115)	( )	( )	14-23, 25-28,	No qual (MS/Din)
			X	120 (70-119)	( )	( )	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/P
			B	156 (53-150)	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

* MS/MSD non-client sple

LDC #: 19590 C1
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)		J- /UJ /A
			CBZ	272304 (410129 - 1640516)		
			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	0.37		4.78
CC	0.62	0.25	0.37
DDD	0.57	0.41	0.16

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 17590 C4
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

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

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	Recalculated RRF	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL MSF	9/12/07	~~Methylene chloride~~ C (1st internal standard)	0.70494	0.70494	0.77278	0.77279	15.7499 ✓	15.75017
			Trichlorethene EE (2nd internal standard)	2.29577	2.29577	2.4068	2.4068	7.79204	7.99204
			Toluene BB (3rd internal standard)	0.66586	0.66586	0.67499	0.6751 ✓	7.36637	7.33117 ✓
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

Reviewer: JVC
2nd Reviewer: ____

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	2.01147	2.01147	11.82523	11.8250
			~~Toluene~~ BB (3rd Internal standard)	0.67499	0.67940	0.67940	0.65329	0.6525
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

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

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 #: 17590 C1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: JVC
2nd Reviewer:

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 #: SeCover

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

LCS ID: 7261455 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	106				

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: JVC
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. = $\frac{(13291)(50)(5.0ml)}{(906198)(1.2077\%)(4.99)(0.784)}$

= 0.618

≈ 0.61 ug/kg

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

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 23, 2007

Matrix: Soil/Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I110258

TSB-BR-05-0'	TB for RINSATE-21
TSB-BR-05-10'	TB for BR-03-30,03-10
TSB-BR-04-0'	TB for RINSATE-23
TSB-BR-04-0'(FD)	TB for BR04-0,FD,04-10
TSB-BR-04-10'	TB for BJ-05-0,04-10,BR-05-0
TSB-BJ-03-0'	TB for BR-05-0,05-10
TSB-BJ-03-0'(FD)	TB for RINSATE-27
TSB-BJ-03-10'	TB for BJ-03-0,FD,10
TSB-BJ-05-0'	TSB-BR-05-0'MS
TSB-BJ-05-10'	TSB-BR-05-0'MSD
TSB-BR-01-0'	
TSB-BR-01-10'	
TSB-BJ-04-0'	
TSB-BJ-04-10'	
TSB-BR-02-0'	
TSB-BR-02-10'	
TSB-BR-03-0'	
TSB-BR-03-10'	
RINSATE 3	
TB for BR-01-0,01-10,BJ05-10	

Introduction

This data review covers 20 soil samples and 10 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.

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. 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
9/17/07	Ethanol	0.00640 (≥0.05)	All water samples in SDG F7I110258	J (all detects) UJ (all non-detects)	A
8/9/07	Ethanol	0.00236 (≥0.05)	All soil samples in SDG F7I110258	J (all detects) UJ (all non-detects)	A
9/12/07	Acetonitrile	0.02504 (≥0.05)	All soil samples in SDG F7I110258	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
9/18/07 (LCAL5930)	Bromomethane Carbon disulfide	77.49645 33.33572	All water samples in SDG F7I110258	J+ (all detects) J+ (all detects)	A
9/23/07 (FCAL6769)	Bromomethane	41.39511	All soil samples in SDG F7I110258	J+ (all detects)	A
9/23/07 (FCAL6770)	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	51.02938 61.76012 53.75050 55.62392 61.27051 65.49104 57.07730 59.39095 57.31508 56.02690	All soil samples in SDG F7I110258	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

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

Date	Compound	%D	Associated Samples	Flag	A or P
9/17/07 (LCAL5900)	Bromomethane Carbon disulfide	67.52117 36.67244	All water samples in SDG F7I110258	J+ (all detects) J+ (all detects)	A

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
9/18/07 (LCAL5929)	Ethanol	0.00557 (≥0.05)	All water samples in SDG F7I110258	J (all detects) UJ (all non-detects)	A
9/23/07 (FCAL6769)	Acetonitrile	0.02742 (≥0.05)	All soil samples in SDG F7I110258	J (all detects) UJ (all non-detects)	A

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
9/23/07 (FCAL6770)	Ethanol	0.00285 (≥0.05)	All soil samples in SDG F7I110258	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
7267175MB	9/23/07	Acetone	22 ug/Kg	All soil samples in SDG F7I110258

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:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TSB-BR-05-0'	Acetone	8.3 ug/Kg	20U ug/Kg
TSB-BR-05-10'	Acetone	8.7 ug/Kg	22U ug/Kg
TSB-BJ-05-10'	Acetone	11 ug/Kg	21U ug/Kg
TSB-BR-01-0'	Acetone	9.3 ug/Kg	21U ug/Kg
TSB-BJ-04-10'	Acetone	5.0 ug/Kg	21U ug/Kg

Samples TB for BR-01-0,01-10,BJ05-10, TB for RINSATE-21, TB for BR-03-30,03-10, TB for RINSATE-23, TB for BR04-0,FD,04-10, TB for BJ-05-0,04-10,BR-05-0, TB for BR-05-0,05-10, TB for RINSATE-27, and TB for BJ-03-0,FD,10 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
TB for BR-01-0,01-10,BJ05-10	9/10/07	Methylene chloride Chloroform Bromodichloromethane Dibromochloromethane	1.6 ug/L 6.2 ug/L 5.5 ug/L 2.5 ug/L	TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10'

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB for RINSATE-21	9/10/07	Acetone Toluene	4.9 ug/L 0.26 ug/L	RINSATE 3
TB for RINSATE-23	9/10/07	Acetone	3.6 ug/L	RINSATE 3
TB for RINSATE-27	9/10/07	Methylene chloride Acetone Toluene	0.45 ug/L 4.4 ug/L 0.27 ug/L	RINSATE 3
TB for BR-03-30,03-10	9/10/07	Acetone	3.8 ug/L	TSB-BR-03-0' TSB-BR-03-10'
TB for BR04-0,FD,04-10	9/10/07	Acetone Toluene	4.1 ug/L 0.27 ug/L	TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10'
TB for BJ-05-0,04-10,BR-05-0	9/10/07	Acetone Toluene	5.6 ug/L 0.29 ug/L	TSB-BR-05-0' TSB-BJ-05-0' TSB-BJ-04-10'
TB for BR-05-0,05-10	9/10/07	Acetone	4.0 ug/L	TSB-BR-05-0' TSB-BR-05-10'
TB for BJ-03-0,FD,10	9/10/07	Methylene chloride Acetone	0.44 ug/L 3.8 ug/L	TSB-BJ-03-0' TSB-BJ-03-0'(FD)

Sample "RINSATE 3" 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 3	9/10/07	Acetone Toluene	4.7 ug/L 0.28 ug/L	All soil samples in SDG F7I110258

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
RINSATE 3	Acetone Toluene	4.7 ug/L 0.28 ug/L	4.7U ug/L 1.0U ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
TSB-BR-05-0'	Acetone	8.3 ug/Kg	20U ug/Kg
TSB-BR-05-10'	Acetone	8.7 ug/Kg	22U ug/Kg
TSB-BR-04-0'(FD)	Toluene	0.25 ug/Kg	5.2U ug/Kg
TSB-BJ-05-0'	Toluene	0.40 ug/Kg	5.2U ug/Kg
TSB-BJ-05-10'	Acetone Toluene	11 ug/Kg 0.25 ug/Kg	21U ug/Kg 5.2U ug/Kg
TSB-BR-01-0'	Acetone Toluene	9.3 ug/Kg 0.58 ug/Kg	21U ug/Kg 5.1U ug/Kg
TSB-BR-01-10'	Toluene	0.20 ug/Kg	5.4U ug/Kg
TSB-BJ-04-0'	Toluene	0.36 ug/Kg	5.2U ug/Kg
TSB-BJ-04-10'	Acetone Toluene	5.0 ug/Kg 0.18 ug/Kg	21U ug/Kg 5.4U ug/Kg
TSB-BR-02-0'	Toluene	0.26 ug/Kg	5.1U ug/Kg

VI. Surrogate Spikes

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

VII. 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 percent recoveries (%R) and relative percent differences (RPD) were not within QC limits for some compounds, the LCS/LCSD percent recoveries (%R) were within QC limits and 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
7262173LCS/D (All water samples in SDG F7I110258)	Bromomethane	165 (38-140)	155 (38-140)	-	J+ (all detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

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-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 volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)			
1,2,4-Trimethylbenzene	0.31	0.31	0 (≤5.2)	-	-

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)			
Toluene	5.2U	0.25	4.95 (≤5.2)	-	-

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)			
1,2,4-Trimethylbenzene	0.27	0.38	0.11 (≤5.6)	-	-

BRC Parcel 4A/4B Sampling Event
Volatiles - Data Qualification Summary - SDG F7I110258

SDG	Sample	Compound	Flag	A or P	Reason
F7I110258	RINSATE 3 TB for BR-01-0,01-10,BJ05-10 TB for RINSATE-21 TB for BR-03-30,03-10 TB for RINSATE-23 TB for BR04-0,FD,04-10 TB for BJ-05-0,04-10,BR-05-0 TB for BR-05-0,05-10 TB for RINSATE-27 TB for BJ-03-0,FD,10	Ethanol	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10'	Ethanol Acetonitrile	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
F7I110258	RINSATE 3 TB for BR-01-0,01-10,BJ05-10 TB for RINSATE-21 TB for BR-03-30,03-10 TB for RINSATE-23 TB for BR04-0,FD,04-10 TB for BJ-05-0,04-10,BR-05-0 TB for BR-05-0,05-10 TB for RINSATE-27 TB for BJ-03-0,FD,10	Bromomethane Carbon disulfide	J+ (all detects) J+ (all detects)	A	Continuing calibration (%D)

SDG	Sample	Compound	Flag	A or P	Reason
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10'	Bromomethane 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)	A	Continuing calibration (%D)
F7I110258	RINSATE 3 TB for BR-01-0,01-10,BJ05-10 TB for RINSATE-21 TB for BR-03-30,03-10 TB for RINSATE-23 TB for BR04-0,FD,04-10 TB for BJ-05-0,04-10,BR-05-0 TB for BR-05-0,05-10 TB for RINSATE-27 TB for BJ-03-0,FD,10	Bromomethane Carbon disulfide	J+ (all detects) J+ (all detects)	A	Continuing calibration (ICV %D)
F7I110258	RINSATE 3 TB for BR-01-0,01-10,BJ05-10 TB for RINSATE-21 TB for BR-03-30,03-10 TB for RINSATE-23 TB for BR04-0,FD,04-10 TB for BJ-05-0,04-10,BR-05-0 TB for BR-05-0,05-10 TB for RINSATE-27 TB for BJ-03-0,FD,10	Ethanol	J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10'	Acetonitrile Ethanol	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)

SDG	Sample	Compound	Flag	A or P	Reason
F7I110258	RINSATE 3 TB for BR-01-0,01-10,BJ05-10 TB for RINSATE TB for BR-03-30,03-10 TB for RINSATE TB for BR04-0,FD,04-10 TB for BJ-05-0,04-10,BR-05-0 TB for BR-05-0,05-10 TB for RINSATE TB for BJ-03-0,FD,10	Bromomethane	J+ (all detects)	P	Laboratory control samples (%R)

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

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
F7I110258	TSB-BR-05-0'	Acetone	20U ug/Kg	A
F7I110258	TSB-BR-05-10'	Acetone	22U ug/Kg	A
F7I110258	TSB-BJ-05-10'	Acetone	21U ug/Kg	A
F7I110258	TSB-BR-01-0'	Acetone	21U ug/Kg	A
F7I110258	TSB-BJ-04-10'	Acetone	21U ug/Kg	A

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

SDG	Sample	Compound	Modified Final Concentration	A or P
F7I110258	RINSATE 3	Acetone Toluene	4.7U ug/L 1.0U ug/L	A
F7I110258	TSB-BR-05-0'	Acetone	20U ug/Kg	A
F7I110258	TSB-BR-05-10'	Acetone	22U ug/Kg	A
F7I110258	TSB-BR-04-0'(FD)	Toluene	5.2U ug/Kg	A
F7I110258	TSB-BJ-05-0'	Toluene	5.2U ug/Kg	A

SDG	Sample	Compound	Modified Final Concentration	A or P
F7I110258	TSB-BJ-05-10'	Acetone Toluene	21U ug/Kg 5.2U ug/Kg	A
F7I110258	TSB-BR-01-0'	Acetone Toluene	21U ug/Kg 5.1U ug/Kg	A
F7I110258	TSB-BR-01-10'	Toluene	5.4U ug/Kg	A
F7I110258	TSB-BJ-04-0'	Toluene	5.2U ug/Kg	A
F7I110258	TSB-BJ-04-10'	Acetone Toluene	21U ug/Kg 5.4U ug/Kg	A
F7I110258	TSB-BR-02-0'	Toluene	5.1U ug/Kg	A

LDC #: 17590D1
SDG #: F7I110258
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/16/07
Page: 1 of 1
Reviewer: DVL
2nd Reviewer: [signature]

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	A	Sampling dates: 9/10/07
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	% RSD ✓
IV.	Continuing calibration / low	SW	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS / D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D_1 = 3, 4 D_2 = 6, 7
XVII.	Field blanks	SW	R = 19 TB = 20 - 28

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: Soil + Water

1	TSB-BR-05-0' S		11	TSB-BR-01-0' S		21 ✓	TB for RINSATE - 21 W		31	7267175 MB	
2	TSB-BR-05-10'		12	TSB-BR-01-10'		22 ✓	TB for BR-03-30,03-10		32 ✓	7262173 MB	
3	TSB-BR-04-0' D_1		13	TSB-BJ-04-0'		23 ✓	TB for RINSATE - 23		33		
4	TSB-BR-04-0'(FD) D_1		14	TSB-BJ-04-10'		24 ✓	TB for BR04-0,FD,04-10		34		
5	TSB-BR-04-10'		15	TSB-BR-02-0'		25 ✓	TB for BJ-05-0,04-10,BR-05-0		35		
6	TSB-BJ-03-0' D_2		16	TSB-BR-02-10'		26 ✓	TB for BR-05-0,05-10		36		
7	TSB-BJ-03-0'(FD) D_2		17	TSB-BR-03-0'		27 ✓	TB for RINSATE - 27		37		
8	TSB-BJ-03-10'		18	TSB-BR-03-10'	✓	28 ✓	TB for BJ-03-0,FD,10	✓	38		
9	TSB-BJ-05-0'		19 ✓	RINSATE 3	W	29	TSB-BR-05-0'MS	S	39		
10	TSB-BJ-05-10'	✓	20 ✓	TB for BR-01-0,01-10,BJ05-10		30	TSB-BR-05-0'MSD	✓	40		

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 D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JVC
2nd Reviewer: g

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	LCAL5900	B (+)	67.52117		All water + 7262173 MB	J+ dets /A
		(ICV)	G (+)	36.67244			
	9/18/07	LCAL5930	B (+)	77.49645			
		(CCV)	G (+)	33.33577			
		LCAL 5929	WWW		0.00557		J/NJ/A
		(CCV)					
	9/23/07	FCAL 6769	B (+)	41.39511		All soils + 7267175 MB	J+ dets /A
		(CCV)	EEEE		0.02747		J/NJ/A
		FCAL 6770	WWW		0.00285		
		(CCV)	XXXX (+)	51.02938			J+ dets /A
			RRRR (+)	61.76017			
			YYYY (+)	53.75050			
			SSSS (+)	55.62397			
			TTTT (+)	61.27057			
			PPPP (+)	65.49104			
			UUUU (+)	57.07730			
			VVVV (+)	59.39095			
			QQQQ (+)	57.31508			
			000 (+)	56.02690			

LDC #: 17590D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Page: 1 of 1
Reviewer: JVC
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 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? $r \geq 0.99$
(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
	9/17/07	ICAL-L	WWW		0.00640	All water + 726217B MB	J/UJ/A
	8/09/07	ICAL-F	WWW		0.00236	All soils + 726717S MB	
	9/12/07	ICAL-F	EEEE		0.02504	↓	↓

INICAL.1SB

LDC #: 17590 D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer: JV6
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: 9/23/07
Conc. units: ug/kg
Associated Samples: 1 – 18 (All soils)

Compound	Blank ID	Sample Identification								
	72671175MB	1	2	10	11	14				
Methylene chloride										
Acetone	22	8.3/20U	8.7/22U	11/21U	9.3/21U	5.0/21U				
CRQL										

Blank analysis date:
Conc. units:
Associated Samples:

Compound	Blank ID	Sample Identification								
Methylene chloride										
Acetone										
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 #: 17590 D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVB
2nd Reviewer: [illegible]

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, 11, 12 (ND)

Compound	Blank ID 20	Blank ID	Sample Identification							
Sampling Date	9/10/07									
Methylene chloride	1.6									
Acetone										
Chloroform	6.7									
P	5.5									
T	2.5									
CRQL										

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

Compound	Blank ID 21	Blank ID 23	27	Sample Identification						
Sampling Date	9/10/07	→	→	19						
Methylene chloride			0.45							
Acetone	4.9	3.6	4.4	4.7/4						
Chloroform										
CC	0.26		0.27	0.28/1.04						
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 D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG
2nd Reviewer: [illegible]

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: 17, 18 (ND)

Compound	Blank ID 22	Blank ID	Sample Identification							
Sampling Date	9/10/07									
Methylene chloride										
Acetone	3.8									
Chloroform										
CRQL										

Blank units: _____ **Associated sample units:** _____
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 3 – 5

Compound	Blank ID 24	Blank ID	Sample Identification							
Sampling Date	9/10/07		4							
Methylene chloride										
Acetone	4.1									
Chloroform										
CC	0.27		6.25/5.24							
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 D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVC
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?

25 = 1, 9, 14
26 = 1, 2

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

Compound	Blank ID 25	Blank ID 26	Sample Identification							
Sampling Date	9/10	/07	1	2	9	14				
Methylene chloride										
Acetone	5.6	4.0	8.3 /20U	8.7 /22U		5.0 /21 U				
Chloroform										
CC	0.29				0.40 /5.2U	0.18/5.4U				
CRQL										

Blank units: ug/L **Associated sample units:** ug/L
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 6, 7 (ND)

Compound	Blank ID 28	Blank ID	Sample Identification							
Sampling Date										
Methylene chloride	0.44									
Acetone	3.8									
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 #: 17590 D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: JVG
2nd Reviewer: [signature]

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 19	Blank ID	Sample Identification							
Sampling Date	9/10/07		1	2	4	9	10	11	12	13
Methylene chloride										
Acetone	4.7		8.3/20U	8.7/22U			11/21U	9.3/21U		
Chloroform										
CC	0.28				0.25/5.2U	0.40/5.2U	0.25/5.2U	0.58/5.1U	0.20/5.4U	0.36/5.2U
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 19	Blank ID	Sample Identification							
Sampling Date	9/10/07		14	15						
Methylene chloride										
Acetone	4.7		5.0/21U							
Chloroform										
CC	0.28		0.18/5.4U	0.26/5.1U						
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 D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: JV6
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 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
		29/30	AA	16% (31-150)	16% (31-150)	( )	1	No qual
			HH	8.3 (10-150)	5.0 (10-150)	50 (26)	↓	(LCS/D in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	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 #: 17590 D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: JVG
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".

[✓ 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
		7262173 LCS/D	B	165 (38-140)	155 (38-140)	( )	All water + 7262173 MB	J+ dets/P
				( )	( )	( )		(No MS/MSD)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		

LDC #: 17590 D1
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

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 (ug/kg) 3	4	RPD
DDD	0.31	0.31	0 (≤5.2 Diff)
CC	5.2 U	0.25	4.95

Compound	Concentration (ug/kg) 6	7	RPD
DDD	0.27	0.38	0.11 (≤5.6 Diff)

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

BRC Parcel 4A/4BSampling Event
Data Validation Reports
LDC# 17590

Semivolatiles

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 17, 2007

Matrix: Soil

Parameters: Semivolatiles

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I060284

Sample Identification

TSB-AR-01-0'
TSB-AR-01-0'-Dup
TSB-AR-01-10'
TSB-AR-02-0'
TSB-AR-02-10'
TSB-AR-04-0'
TSB-AR-04-10'
TSB-AR-05-0'
TSB-AR-05-10'
TSB-AR-07-0'
TSB-AR-07-10'
TSB-AR-04-0'MS
TSB-AR-04-0'MSD

Introduction

This data review covers 13 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

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.

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. 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 semivolatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

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
9/21/07 (ICAL1172)	Benzoic acid	38.04054	All samples in SDG F7I060284	J- (all detects) UJ (all non-detects)	A

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/22/07 (ICAL0756)	Chrysene	30.07092	All samples in SDG F7I060284	J+ (all detects)	A
9/20/07 (ICAL1162)	Phthalic acid	61.62270	All samples in SDG F7I060284	J+ (all detects)	A

All of the continuing calibration RRF values were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

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

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 within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Although the LCS percent recovery (%R) was not within QC limits for one compound, the MS/MSD percent recoveries (%R) were within QC limits and no data were qualified.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples TSB-AR-01-0' and TSB-AR-01-0'-Dup were identified as field duplicates. No semivolatiles were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Semivolatiles - Data Qualification Summary - SDG F7I060284

SDG	Sample	Compound	Flag	A or P	Reason
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Benzoic acid	J- (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Chrysene Phthalic acid	J+ (all detects) J+ (all detects)	A	Continuing calibration (ICV %D)

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

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

LDC #: 17590A2 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/15/07
SDG #: F7I060284 Level III Page: 1 of 1
Laboratory: Test America Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C)

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: 9/05/07
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	%RSD r
IV.	Continuing calibration/ICV	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	SW	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 1,2
XVII.	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: Soil

1	TSB-AR-01-0'	11	TSB-AR-07-10'	21	7253143 MB	31	
2	TSB-AR-01-0'-Dup	12	TSB-AR-04-0'MS	22		32	
3	TSB-AR-01-10'	13	TSB-AR-04-0'MSD	23		33	
4	TSB-AR-02-0'	14		24		34	
5	TSB-AR-02-10'	15		25		35	
6	TSB-AR-04-0'	16		26		36	
7	TSB-AR-04-10'	17		27		37	
8	TSB-AR-05-0'	18		28		38	
9	TSB-AR-05-10'	19		29		39	
10	TSB-AR-07-0'	20		30		40	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniline
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT. 1,4- Dioxane
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU Phthalic anhydride
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV. Phthalic acid
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW. n-(Hydroxymethy) Phthalimide

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

LDC #: 17590 A1v
SDG #: Lee Cmbr

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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 of sample analysis 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
	8/22/07	ICAL 0756 (ICV)	DDD (+)	30.0709 v		All + Blk	J+ (all detects) /A
	9/20/07	ICAL 1162 (ICV)	VVV (+)	61.62270			
	9/21/07	ICAL 1177 (CCV)	PPP (-)	38.04054		↓	J-/UJ/A

CONCAL.2S

LDC #: 17590A2
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: JVZ
2nd Reviewer: ℓ

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		7253143 LCS	DDP	106 (46-97)	( )	( )	All + Blk	No qual (MS/MSD in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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Laboratory Data Consultants, Inc.
Data Validation Report

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

Collection Date: September 6, 2007

LDC Report Date: October 17, 2007

Matrix: Soil/Water

Parameters: Semivolatiles

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I070120

Sample Identification

TSB-AR-08-0'	RINSATE 1MS
TSB-AR-08-10'	RINSATE 1MSD
TSB-AR-11-0'	
TSB-AR-11-0'-Dup	
TSB-AR-11-10'	
TSB-AR-14-0'	
TSB-AR-14-10'	
TSB-AR-13-0'	
TSB-AR-13-10'	
TSB-AR-10-0'	
TSB-AR-10-10'	
TSB-AR-9-0'	
TSB-AR-9-10'	
TSB-AR-12-0'	
TSB-AR-12-10'	
TSB-AR-3-0'	
TSB-AR-3-10'	
RINSATE 1	
TSB-AR-10-0'MS	
TSB-AR-10-0'MSD	

Introduction

This data review covers 19 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

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.

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. 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 semivolatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

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
9/21/07 (ICAL1172)	Benzoic acid	38.04054	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' 7253143MB	J- (all detects) UJ (all non-detects)	A
9/24/07 (ICAL1195)	Benzoic acid	42.48858	TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' TSB-AR-10-0'MS TSB-AR-10-0'MSD 7254076MB	J- (all detects) UJ (all non-detects)	A
9/25/07 (ICAL1218)	Benzoic acid	36.78929	RINSATE 1 RINSATE 1MS RINSATE 1MSD 7254325MB	J- (all detects) UJ (all non-detects)	A

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/22/07 (ICAL0756)	Chrysene	30.07092	All samples in SDG F7I070120	J+ (all detects)	A
9/20/07 (ICAL1162)	Phthalic acid	61.62270	All samples in SDG F7I070120	J+ (all detects)	A

All of the continuing calibration RRF values were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Sample "RINSATE 1" was identified as a rinsate. No semivolatile contaminants were found in this blank.

VI. Surrogate Spikes

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

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Although the LCS percent recovery (%R) was not within QC limits for one compound, the MS/MSD percent recoveries (%R) were within QC limits and no data were qualified.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. Field Duplicates

Samples TSB-AR-11-0' and TSB-AR-11-0'-Dup were identified as field duplicates. No semivolatiles were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Semivolatiles - Data Qualification Summary - SDG F7I070120

SDG	Sample	Compound	Flag	A or P	Reason
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1	Benzoic acid	J- (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1	Chrysene Phthalic acid	J+ (all detects) J+ (all detects)	A	Continuing calibration (ICV %D)

BRC Parcel 4A/4B Sampling Event
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Semivolatiles - Field Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

LDC #: 17590B2 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/16/07
SDG #: F7I070120 Level III Page: 1 of 1
Laboratory: Test America Reviewer: JVC
2nd Reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C)

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: 9/06/07
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	2o RSD r
IV.	Continuing calibration/ICV	SW	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	TSB-AR-04-0' (from F71060284)
VIII.	Laboratory control samples	SW	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards		
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 3,4
XVII.	Field blanks	ND	R = 18

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: Soil + Water

1	TSB-AR-08-0'	S	11	TSB-AR-10-10'	S	21	RINSATE 1MS	W	31	7253143	MB
2	TSB-AR-08-10'		12	TSB-AR-9-0'		22	RINSATE 1MSD		32	7254076	MB
3	TSB-AR-11-0'	D	13	TSB-AR-9-10'		23			33	7254325	MB
4	TSB-AR-11-0'-Dup	D	14	TSB-AR-12-0'		24			34		
5	TSB-AR-11-10'		15	TSB-AR-12-10'		25			35		
6	TSB-AR-14-0'		16	TSB-AR-3-0'		26			36		
7	TSB-AR-14-10'		17	TSB-AR-3-10'		27			37		
8	TSB-AR-13-0'		18	RINSATE 1	W	28			38		
9	TSB-AR-13-10'		19	TSB-AR-10-0'MS	S	29			39		
10	TSB-AR-10-0'		20	TSB-AR-10-0'MSD		30			40		

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniline
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT. 1,4-Dioxane
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU. Phthalic anhydride
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV. Phthalic acid
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW. n-(Hydroxymethyl)phthalimide

LDC #: 17590 B7
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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 of sample analysis 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
	8/22/07	ICAL 0756 (ICV)	DDD (+)	20.07092		All + Blanks	J/+ dets /A
	9/20/07	ICAL 1162 (ICV)	VVV (+)	61.62270			
	9/21/07	ICAL 1172 (CCV)	PPP (-)	38.04054		1-3, 7253143 MB	J-/UJ /A
	9/24/07	ICAL 1195 (CCV)	PPP (-)	42.48858		4-17, 19, 20, 7254076 MB	J-/UJ /A
	9/25/07	ICAL 1218 (CCV)	PPP (-)	36.78929		18, 21, 22, 7254325 MB	J-/UJ /A

CONCAL.2S

LDC #: 17590 BY
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits?
Y (N) N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y N (N/A) If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
		725325 MB	FBP	48 (50-100)	No qual (only 1 out)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

* QC limits are advisory	QC Limits (Soil)	QC Limits (Water)		QC Limits (Soil)	QC Limits (Water)
S1 (NBZ) = Nitrobenzene-d5	23-120	35-114	S5 (2FP)= 2-Fluorophenol	25-121	21-100
S2 (FBP) = 2-Fluorobiphenyl	30-115	43-116	S6 (TBP) = 2,4,6-Tribromophenol	19-122	10-123
S3 (TPH) = Terphenyl-d14	18-137	33-141	S7 (2CP) = 2-Chlorophenol-d4	20-130*	33-110*
S4 (PHL) = Phenol-d5	24-113	10-94	S8 (DCB) = 1,2-Dichlorobenzene-d4	20-130*	16-110*

LDC #: 17590 bv
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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
		21/27	DDD	90 (44-88)	( )	( )	18	No qual (MSD in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	GG.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
C.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	II.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
E.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	KK.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
J.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	TT.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
R.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	ZZ.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
V.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 17590 B2
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		7253143 LCS	DDD	106 (46-97)	( )	( )	1-9, 7253143 MB	No qual
				( )	( )	( )		(MS/MSD in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

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 22, 2007

Matrix: Soil/Water

Parameters: Semivolatiles

Validation Level: EPA Level III & IV

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I100142

Sample Identification

RINSATE 2
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'**

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 18 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 8270C for Semivolatiles.

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.

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 semivolatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

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
9/24/07 (ICAL1195)	Benzoic acid	42.48858	7254076MB	J- (all detects) UJ (all non-detects)	A
9/25/07 (ICAL1218)	Benzoic acid	36.78929	RINSATE 2 TSB-AR-06-0' TSB-AR-06-0'-Dup 7254325MB	J- (all detects) UJ (all non-detects)	A
9/26/07 (ICAL1241)	Benzoic acid	29.78587	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'** 7256118MB	J- (all detects) UJ (all non-detects)	A

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/22/07 (ICAL0756)	Chrysene	30.07092	All samples in SDG F7I100142	J+ (all detects)	A
9/20/07 (ICAL1162)	Phthalic acid	61.62270	All samples in SDG F7I100142	J+ (all detects)	A

All of the continuing calibration RRF values were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Sample "RINSATE 2" was identified as a rinsate. No semivolatile contaminants were found in this blank.

VI. Surrogate Spikes

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

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) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

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 have been 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 semivolatiles were detected in any of the samples.

BRC Background Investigation Sampling Event
Semivolatiles - Data Qualification Summary - SDG F7I100142

SDG	Sample	Compound	Flag	A or P	Reason
F7I100142	RINSATE 2 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'**	Benzoic acid	J- (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
F7I100142	RINSATE 2 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'**	Chrysene Phthalic acid	J+ (all detects) J+ (all detects)	A	Continuing calibration (ICV %D)

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

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

LDC #: 17590C2 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/18/07
SDG #: F7I100142 Level III/IV Page: 1 of 1
Laboratory: Test America Reviewer: SVG
2nd Reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C)

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: 9/07/07
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD r
IV.	Continuing calibration/ICV	SW	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	TSB-AR-10-0', Rinsate 1 (F7I070120) TSB-BR-06-0 (F7I110258)
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
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)	~~A~~ A	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	ND	D_1 = 2, 3 D_2 = 7, 8
XVII.	Field blanks	ND	R = 1

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-AJ-03-10'** S	21	1	725 4325 MB	31		
2	TSB-AR-06-0' D_1 S	12	TSB-BJ-06-0'**	22	2	725 4076	32		
3	TSB-AR-06-0'-Dup D_1	13	TSB-BJ-06-10'**	23	3	725 6118	33		
4	TSB-AR-06-10'	14	TSB-BJ-01-0'**	24			34		
5	TSB-AJ-01-0'**	15	TSB-BJ-01-10'	25			35		
6	TSB-AJ-01-10'**	16	TSB-BJ-02-0'**	26			36		
7	TSB-AJ-02-0'** D_2	17	TSB-BJ-02-10'**	27			37		
8	TSB-AJ-02-0'-Dup** D_2	18	TSB-BR-06-0'**	28			38		
9	TSB-AJ-02-10'**	19	TSB-BR-06-10'**	29			39		
10	TSB-AJ-03-0'**	20		30			40		

LDC #: 17590 CV
SDG #: See Cover

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: JVC
2nd Reviewer:

Method: Semivolatiles (EPA SW 846 Method 8270C)

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 DFTPP 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 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 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?		✓		
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
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 #: 17590CV
SDG #: See Cover

VALIDATION FINDINGS CHECKLIST

Reviewer: IV
2nd Reviewer: A

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?	✓			
Internal Standards				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?				✓
Internal Standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within + 30 seconds from the associated calibration standard?	✓			
Compound Identification				
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?	✓			
Target Compound Identification/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?	✓			
Tentatively Identified Compounds (TICs)				
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)?	✓			
System Performance				
System performance was found to be acceptable.	✓			
Overall Assessment of Data				
Overall assessment of data was found to be acceptable.		✓		
Field Duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.		✓		
Field Blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniline
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 3/4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT. 1,4-Dioxane
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU. Phthalic anhydride
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV. Phthalic acid
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW. n-(Hydroxymethyl) phthalimide

LDC #: 17590 CV
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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

(X) N N/A Was a continuing calibration standard analyzed at least once every 12 hours of sample analysis 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
	8/22/07	ICAL 0756 (ICV)	DDD (+)	30.07097		All + Blks	J+ dets / A
	9/20/07	ICAL 1167 (ICV)	VVV (+)	61.62270			
	9/24/07	ICAL 1195 (CCV)	PPP (+)	42.49858		7254076 MB	J- / UJ / A
	9/25/07	ICAL 1218 (CCV)	PPP (-)	36.78929		1-3, 7254325 MB	
	9/26/07	ICAL 1241 (CCV)	PPP (-)	29.78587		4-19, 7256118 MB	

LDC #: 17590C2
SDG #: See Cover
METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

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

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

[✓ Y] N N/A Were percent recoveries (%R) for surrogates within QC limits?
[✓ Y] N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
Y [✓ N] N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
		7254325 MB	FBP	48 (50-100)	No qual (only 1 out)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

* QC limits are advisory	QC Limits (Soil)	QC Limits (Water)		QC Limits (Soil)	QC Limits (Water)
S1 (NBZ) = Nitrobenzene-d5	23-120	35-114	S5 (2FP)= 2-Fluorophenol	25-121	21-100
S2 (FBP) = 2-Fluorobiphenyl	30-115	43-116	S6 (TBP) = 2,4,6-Tribromophenol	19-122	10-123
S3 (TPH) = Terphenyl-d14	18-137	33-141	S7 (2CP) = 2-Chlorophenol-d4	20-130*	33-110*
S4 (PHL) = Phenol-d5	24-113	10-94	S8 (DCB) = 1,2-Dichlorobenzene-d4	20-130*	16-110*

LDC #: 17590C2
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of
Reviewer: JVB
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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-10-0' MS/MSD	HH	( )	( )	32 (30)	None	No qual
				( )	( )	( )		
				( )	( )	( )		
		Rinsate 1 MS/MSD	DDD	( )	90 (44-88)	( )		
				( )	( )	( )		
				( )	( )	( )		
		TSB-BR-05-0' MS/MSD	OO	( )	75 (14-72)	( )		
			DDD	( )	121 (22-120)	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	GG.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
C.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	II.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
E.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	KK.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
J.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	TT.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
R.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	ZZ.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
V.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 17590 Cr
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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 concentation

RPD = | MS - MSD | * 2/(MS + MSD) MS = Matrix spike percent recovery MSD = Matrix spike duplicate percent recovery

MS/MSD samples: TSB-AR-10-0' 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
Phenol	3420	3380	0	2110	2130	62	62	63	63	0.8%	0.9
N-Nitroso-di-n-propylamine				2490	2510	73	73	74	74	0.6%	0.8
4-Chloro-3-methylphenol				2290	2330	67	67	69	69	1.6	1.7
Acenaphthene				2390	2470	70	76	72	72	1.5	1.3
Pentachlorophenol				1950	2110	57	57	62	62	7.9	7.9
Pyrene				2470	2470	71	71	73	73	1.7	1.6

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 #: 17596C7
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: TVC
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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 RRF (50 std)	Recalculated RRF (50 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	8/22/07	Phenol (1st internal standard)	2.08834	2.08834	2.02824	2.02824	5.49549	5.49546
			Naphthalene (2nd internal standard)	1.10241	1.10241	1.07505	1.07505	4.26946	4.26935
			Fluorene (3rd internal standard)	1.41234	1.41234	1.37675	1.37675	2.83176	2.83189
			Pentachlorophenol (4th internal standard)	see r2		Calculations			
	MSI		Bis(2-ethylhexyl)phthalate (5th internal standard)	0.99078	0.99078	0.94611	0.94611	3.38643	3.37430
			Benzo(a)pyrene (6th internal standard)	1.24961	1.24961	1.22334	1.22334	2.56667	2.56317
2			Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						
3			Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th 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 #17590CV
SDG# Sec Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVB
2nd Reviewer:

METHOD: EPA SW 846 Method 8270

Parameter: Pentachlorophenol

Date	Instrument	Compound	Y Amount Ratio	X Response Ratio	X2
08/22/2007	MSI	Pentachlorophenol	0.25	0.029413410	
			0.5	0.069547904	
			1.3	0.192987375	
			2.0	0.344332591	
			3.0	0.531632040	
			4.0	0.734687056	

Regression Output:			Reported	
Constant		0.15235	K =	0.15235
Std Err of Y Est		0.05696		
R Squared		0.99879	r2	0.9987900
No. of Observations		6.00000		
Degrees of Freedom		4.00000		
			m =	0.18864000
X Coefficient(s)	5.30111E+000	-1.80661E+000		
Std Err of Coef.	0.092322	0.70		

LDC #: 17590 CV
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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	ICAL1241	9/26/07	Phenol (1st internal standard)	2.02824	2.01827	2.01827	0.49162	0.49158
			Naphthalene (2nd internal standard)	1.07505	1.09482	1.09482	1.83909	1.83909
			Fluorene (3rd internal standard)	1.37675	1.43847	1.43847	4.48011	4.47975
			Pentachlorophenol (4th internal standard)	50.00	48.84537	48.8459	2.30925	2.30826
			Bis(2-ethylhexyl)phthalate (5th internal standard)	0.94611	0.93047	0.93047	1.65297	1.65296
			Benzo(a)pyrene (6th internal standard)	1.22334	1.25116	1.25116	2.26907	2.27410
2			Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					
3			Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th 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 #: 17590 CV
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

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

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C)

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: # 6

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	50	33.8977	68	68	0
2-Fluorobiphenyl	↓	35.4957	71	71	↓
Terphenyl-d14	↓	39.8489	80	80	
Phenol-d5	75	51.7075	69	69	
2-Fluorophenol	↓	49.8835	66	66	
2,4,6-Tribromophenol	↓	51.3949	69	69	
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 19590 CV
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

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

LCS/LCSD samples: 7256118 LCS

Compound	Spike Added (ug/kg)		Spike Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol	3330	NA	1776	NA	53	53				
N-Nitroso-di-n-propylamine			2130		64	64				
4-Chloro-3-methylphenol			1900		57	57				
Acenaphthene			2086		67	67				
Pentachlorophenol			1600		48	48				
Pyrene			2130		64	64				

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

LDC #: 17590c7
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JVC
2nd reviewer: [signature]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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 = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

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).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. _____ , MB :

Conc. = ( )( )( )( )( ) / ( )( )( )( )( ) =

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

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 22, 2007

Matrix: Soil/Water

Parameters: Semivolatiles

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I110258

Sample Identification

TSB-BR-05-0'
TSB-BR-05-10'
TSB-BR-04-0'
TSB-BR-04-0'(FD)
TSB-BR-04-10'
TSB-BJ-03-0'
TSB-BJ-03-0'(FD)
TSB-BJ-03-10'
TSB-BJ-05-0'
TSB-BJ-05-10'
TSB-BR-01-0'
TSB-BR-01-10'
TSB-BJ-04-0'
TSB-BJ-04-10'
TSB-BR-02-0'
TSB-BR-02-10'
TSB-BR-03-0'
TSB-BR-03-10'
RINSATE 3
TSB-BR-05-0'MS
TSB-BR-05-0'MSD
TSB-BR-02-0'MS
TSB-BR-02-0'MSD
RINSATE 3MS
RINSATE 3MSD

Introduction

This data review covers 22 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

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.

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. 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 semivolatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

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
9/27/07 (ICAL1264)	Benzoic acid	41.50682	TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10' RINSATE 3 TSB-BR-02-0'MS TSB-BR-02-0'MSD RINSATE 3MS RINSATE 3MSD 726131MB	J- (all detects) UJ (all non-detects)	A
9/26/07 (ICAL1241)	Benzoic acid	29.78587	7256118MB	J- (all detects) UJ (all non-detects)	A
9/28/07 (ICAL1286)	Benzoic acid	35.54966	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-05-0'MS TSB-BR-05-0'MSD	J- (all detects) UJ (all non-detects)	A

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/22/07 (ICAL0756)	Chrysene	30.07092	All samples in SDG F7I110258	J+ (all detects)	A
9/20/07 (ICAL1162)	Phthalic acid	61.62270	All samples in SDG F7I110258	J+ (all detects)	A

All of the continuing calibration RRF values were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Sample "RINSATE 3" was identified as a rinsate. No semivolatile contaminants were found in this blank.

VI. Surrogate Spikes

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

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 within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RINSATE 3MS/MSD (RINSATE 3)	Chrysene	103 (44-88)	110 (44-88)	-	J+ (all detects)	A

VIII. Laboratory Control Samples (LCS)

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

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
7256066LCS	Chrysene	110 (43-95)	RINSATE 3 7256066MB	J+ (all detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

Raw data were not reviewed for this SDG.

XV. Overall Assessment of Data

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

XVI. 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 semivolatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		Difference (Limits)
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)	
Butylbenzylphthalate	370U	92	278 (≤370)
Bis(2-ethylhexyl)phthalate	370U	37	333 (≤370)

BRC Parcel 4A/4B Sampling Event
Semivolatiles - Data Qualification Summary - SDG F7I110258

SDG	Sample	Compound	Flag	A or P	Reason
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10' RINSATE 3	Benzoic acid	J- (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10' RINSATE 3	Chrysene Phthalic acid	J+ (all detects) J+ (all detects)	A	Continuing calibration (ICV %D)
F7I110258	RINSATE 3	Chrysene	J+ (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I110258	RINSATE 3	Chrysene	J+ (all detects)	A	Laboratory control samples (%R)

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

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

LDC #: 17590D2 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/17/07
SDG #: F7I110258 Level III Page: 1 of 1
Laboratory: Test America Reviewer: JW
2nd Reviewer: [signature]

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C)

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.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	%RSD r✓
IV.	Continuing calibration/ICV	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	*D_1 = 3, 4 D_2 = 6, 7
XVII.	Field blanks	ND	R = 19

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: Soil + Water

1	TSB-BR-05-0' S	11	TSB-BR-01-0' S	21 1	TSB-BR-05-0'MSD S	31 1	7056118 MB
2	TSB-BR-05-10'	12	TSB-BR-01-10'	22 3	TSB-BR-02-0'MS	32 ✓	7256066
3	TSB-BR-04-0' D_1	13	TSB-BJ-04-0'	23 3	TSB-BR-02-0'MSD	33 3	7262131
4	TSB-BR-04-0'(FD) D_1	14	TSB-BJ-04-10'	24 2	RINSATE 3MS W	34	
5	TSB-BR-04-10'	15 3	TSB-BR-02-0'	25 ✓	RINSATE 3MSD	35	
6	TSB-BJ-03-0' D_2	16 3	TSB-BR-02-10'	26		36	
7	TSB-BJ-03-0'(FD) D_2 ✓	17 3	TSB-BR-03-0'	27		37	
8	TSB-BJ-03-10'	18 3	TSB-BR-03-10'	28		38	
9	TSB-BJ-05-0'	19 ✓	RINSATE 3 W	29		39	
10	TSB-BJ-05-10'	20 1	TSB-BR-05-0'MS S	30		40	

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachlorophenol**	III. Benzo(a)pyrene**
B. Bis (2-chloroethyl) ether	Q. 2,4-Dichlorophenol**	FF. 3-Nitroaniline	UU. Phenanthrene	JJJ. Indeno(1,2,3-cd)pyrene
C. 2-Chlorophenol	R. 1,2,4-Trichlorobenzene	GG. Acenaphthene**	VV. Anthracene	KKK. Dibenz(a,h)anthracene
D. 1,3-Dichlorobenzene	S. Naphthalene	HH. 2,4-Dinitrophenol*	WW. Carbazole	LLL. Benzo(g,h,i)perylene
E. 1,4-Dichlorobenzene**	T. 4-Chloroaniline	II. 4-Nitrophenol*	XX. Di-n-butylphthalate	MMM. Bis(2-Chloroisopropyl)ether
F. 1,2-Dichlorobenzene	U. Hexachlorobutadiene**	JJ. Dibenzofuran	YY. Fluoranthene**	NNN. Aniline
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	OOO. N-Nitrosodimethylamine
H. 2,2'-Oxybis(1-chloropropane)	W. 2-Methylnaphthalene	LL. Diethylphthalate	AAA. Butylbenzylphthalate	PPP. Benzoic Acid
I. 3/4-Methylphenol	X. Hexachlorocyclopentadiene*	MM. 4-Chlorophenyl-phenyl ether	BBB. 3,3'-Dichlorobenzidine	QQQ. Benzyl alcohol
J. N-Nitroso-di-n-propylamine*	Y. 2,4,6-Trichlorophenol**	NN. Fluorene	CCC. Benzo(a)anthracene	RRR. Pyridine
K. Hexachloroethane	Z. 2,4,5-Trichlorophenol	OO. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chloronaphthalene	PP. 4,6-Dinitro-2-methylphenol	EEE. Bis(2-ethylhexyl)phthalate	TTT. 1,4-Dioxane
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU. Phthalic anhydride
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV. Phthalic acid
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW. n-(Hydroxymethyl) phthalimide

LDC #: 17590 DV
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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 of sample analysis 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
	8/22/07	ICAL 0756 (ICV)	DDD (+)	30.0709 r		All + Blks	J+ det /A
	9/20/07	ICAL 1162 (ICV)	VVV (+)	61.62270			
	9/27/07	ICAL 1264 (CCV)	PPP (-)	41.50687		15-19, 22-25, 7256066 MB, 7262131 MB	J-/UJ /A
	9/26/07	ICAL 1241 (CCV)	PPP (-)	29.78587		7256118 MB	
	9/28/07	ICAL 1286 (CCV)	PPP (-)	35.54966		1-14, 20, 21	

CONCAL.2S

LDC #: 17590 DV
SDG #: Sac Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: JV6
2nd Reviewer: R

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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
		24/25	HH	( )	( )	23 (20)	19	No qual (2 R in)
			DDD	103 (44-88)	110 (44-88)	( )	↓	J+ dets/A (LCS not)
				( )	( )	( )		
				( )	( )	( )		
		30/31	00	( )	75 (14-7V)	( )	1	No qual (MS in)
			DDD	( )	121 (22-120)	( )	↓	↓
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	GG.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
C.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	II.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
E.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	KK.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
J.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	TT.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
R.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	ZZ.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
V.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 17590 D7
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

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/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		7256066 LCS	DDD	110 (43-95)	( )	( )	19, 7256066 MB	J+ dets /P (MS/MSD not)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
		7262131 LCS	DDD	102 (46-97)	( )	( )	15-18, 7262131 MB	No qual (MS/D in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		

LDC #: 17590 Dr
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVB
2nd reviewer: 9

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

Compound	Concentration (ug/Kg) 6	7	RPD
AAA	370 U	92	278 (≤ 370 Diff)
EEE	↓	37	333 ↓

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

BRC Parcel 4A/4BSampling Event
Data Validation Reports
LDC# 17590

Pesticides

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 22, 2007

Matrix: Soil

Parameters: Chlorinated Pesticides

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I060284

Sample Identification

TSB-AR-01-0'
TSB-AR-01-0'-Dup
TSB-AR-01-10'
TSB-AR-02-0'
TSB-AR-02-10'
TSB-AR-04-0'
TSB-AR-04-10'
TSB-AR-05-0'
TSB-AR-05-10'
TSB-AR-07-0'
TSB-AR-07-10'
TSB-AR-04-0'MS
TSB-AR-04-0'MSD

Introduction

This data review covers 13 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

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 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.

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. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
9/13/07	KCAL950	B	delta-BHC	16.0	TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	J+ (all detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

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

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 within QC limits.

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Pesticide Cleanup Checks

a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XI. Target Compound Identification

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and Reported CRQLs

Raw data were not reviewed for this SDG.

XIII. Overall Assessment of Data

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

XIV. Field Duplicates

Samples TSB-AR-01-0' and TSB-AR-01-0'-Dup were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Chlorinated Pesticides - Data Qualification Summary - SDG F7I060284

SDG	Sample	Compound	Flag	A or P	Reason
F7I060284	TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	delta-BHC	J+ (all detects)	A	Continuing calibration (%D)

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

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

LDC #: 17590A3
SDG #: F7I060284
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/15/07
Page: 1 of 1
Reviewer: SVG
2nd Reviewer:

METHOD: GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

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: 9/05/07
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	
IV.	Continuing calibration/ICV	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	ND	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: Soil

1	TSB-AR-01-0'	11	TSB-AR-07-10'	21	7253145 MB	31	
2	TSB-AR-01-0'-Dup	12	TSB-AR-04-0'MS	22		32	
3	TSB-AR-01-10'	13	TSB-AR-04-0'MSD	23		33	
4	TSB-AR-02-0'	14		24		34	
5	TSB-AR-02-10'	15		25		35	
6	TSB-AR-04-0'	16		26		36	
7	TSB-AR-04-10'	17		27		37	
8	TSB-AR-05-0'	18		28		38	
9	TSB-AR-05-10'	19		29		39	
10	TSB-AR-07-0'	20		30		40	

LDC #: 17590A3
SDG #: Sculver

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

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

What type or calibration verification calculation was performed? ___ %D or ___ RPD

[✓ Y] N N/A Were Evaluation mix standards run before initial calibration and before samples?
[✓ Y] N N/A Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤15.0% for individual breakdowns)?
[✓ Y] N N/A Was at least one standard run daily to verify the working curve?
Y [✓ N] N/A Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤15.0%?

Level IV/D Only

Y N [✓ N/A] Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Column	Compound	%D (Limit ≤ 15.0)	RT (Limits)	Associated Samples	Qualifications
	9/13/07	KCAL 950	Col.B	C (7)	16.0	( )	7-11	J+ dets /A
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		

A. alpha-BHC
B. beta-BHC
C. delta-BHC
D. gamma-BHC
E. Heptachlor
F. Aldrin
G. Heptachlor epoxide
H. Endosulfan I
I. Dieldrin
J. 4,4'-DDE
K. Endrin
L. Endosulfan II
M. 4,4'-DDD
N. Endosulfan sulfate
O. 4,4'-DDT
P. Methoxychlor
Q. Endrin ketone
R. Endrin aldehyde
S. alpha-Chlordane
T. gamma-Chlordane
U. Toxaphene
V. Aroclor-1016
W. Aroclor-1221
X. Aroclor-1232
Y. Aroclor-1242
Z. Aroclor-1248
AA. Aroclor-1254
BB. Aroclor-1260
CC. DB 608
DD. DB 1701
EE.________
FF.________
GG.________
HH.________
II.________
JJ.________

Laboratory Data Consultants, Inc.
Data Validation Report

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

Collection Date: September 6, 2007

LDC Report Date: October 17, 2007

Matrix: Soil/Water

Parameters: Chlorinated Pesticides

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I070120

Sample Identification

TSB-AR-08-0'	RINSATE 1MS
TSB-AR-08-10'	RINSATE 1MSD
TSB-AR-11-0'	
TSB-AR-11-0'-Dup	
TSB-AR-11-10'	
TSB-AR-14-0'	
TSB-AR-14-10'	
TSB-AR-13-0'	
TSB-AR-13-10'	
TSB-AR-10-0'	
TSB-AR-10-10'	
TSB-AR-9-0'	
TSB-AR-9-10'	
TSB-AR-12-0'	
TSB-AR-12-10'	
TSB-AR-3-0'	
TSB-AR-3-10'	
RINSATE 1	
TSB-AR-10-0'MS	
TSB-AR-10-0'MSD	

Introduction

This data review covers 19 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

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 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.

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. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
9/13/07	KCAL950	B	delta-BHC	16.0	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10'	J+ (all detects)	A
9/13/07	KCAL964	B	Aldrin 4,4'-DDD	15.1 15.1	TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10'	J+ (all detects) J+ (all detects)	A
9/24/07	KCAL152	B	Heptachlor Methoxychlor Endrin ketone	18.4 42.8 46.1	TSB-AR-3-0' TSB-AR-3-10'	J+ (all detects) J+ (all detects) J+ (all detects)	A

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
9/24/07	KCAL152	A	Endosulfan I Dieldrin Endrin Endosulfan II	16.4 16.8 20.3 15.5	TSB-AR-3-0' TSB-AR-3-10'	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A
9/24/07	KCAL153	A	Chlordane, technical	18.9	TSB-AR-3-0' TSB-AR-3-10'	J+ (all detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Sample "RINSATE 1" was identified as a rinsate. No chlorinated pesticide contaminants were found in this blank.

VI. Surrogate Spikes

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

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 within QC limits.

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Pesticide Cleanup Checks

a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XI. Target Compound Identification

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and Reported CRQLs

The sample results for detected compounds from the two columns were within 40% difference with the following exceptions:

Sample	Compound	%D	Flag	A or P
TSB-AR-12-0'	4,4'-DDE Endrin aldehyde 2,4'-DDE	124.4 103.4 115.6	J (all detects) J (all detects) J (all detects)	A
TSB-AR-3-10'	2,4'-DDE	137.7	J (all detects)	A

Raw data were not reviewed for this SDG.

XIII. Overall Assessment of Data

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

XIV. Field Duplicates

Samples TSB-AR-11-0' and TSB-AR-11-0'-Dup were identified as field duplicates. No chlorinated pesticides were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-AR-11-0'	TSB-AR-11-0'-Dup			
beta-BHC	5.9	5.9	0 (≤1.8)	-	-

BRC Parcel 4A/4B Sampling Event
Chlorinated Pesticides - Data Qualification Summary - SDG F7I070120

SDG	Sample	Compound	Flag	A or P	Reason
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10'	delta-BHC	J+ (all detects)	A	Continuing calibration (%D)
F7I070120	TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10'	Aldrin 4,4'-DDD	J+ (all detects) J+ (all detects)	A	Continuing calibration (%D)
F7I070120	TSB-AR-3-0' TSB-AR-3-10'	Heptachlor Methoxychlor Endrin ketone Endosulfan I Dieldrin Endrin Endosulfan II Chlordane, technical	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)
F7I070120	TSB-AR-12-0'	4,4'-DDE Endrin aldehyde 2,4'-DDE	J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs (%D)
F7I070120	TSB-AR-3-10'	2,4'-DDE	J (all detects)	A	Compound quantitation and CRQLs (%D)

BRC Parcel 4A/4B Sampling Event
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

LDC #: 17590B3
SDG #: F7I070120
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/16/07
Page: 1 of 1
Reviewer: JVC
2nd Reviewer: [signature]

METHOD: GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

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: 9/06/07
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	%RSD r²
IV.	Continuing calibration/ICV	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	TSB-AR-04-0'
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	SW	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	D = 3, 4
XV.	Field blanks	ND	R = 18

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: Soil + Water

1	TSB-AR-08-0' S	11	TSB-AR-10-10' S	21	RINSATE 1MS W	31	7253145 MB
2	TSB-AR-08-10'	12	TSB-AR-9-0'	22	RINSATE 1MSD	32	7256062 MB
3	TSB-AR-11-0' D	13	TSB-AR-9-10'	23		33	7254275 MB
4	TSB-AR-11-0'-Dup D	14	TSB-AR-12-0'	24		34	
5	TSB-AR-11-10'	15	TSB-AR-12-10'	25		35	
6	TSB-AR-14-0'	16	TSB-AR-3-0'	26		36	
7	TSB-AR-14-10'	17	TSB-AR-3-10'	27		37	
8	TSB-AR-13-0'	18	RINSATE 1 W	28		38	
9	TSB-AR-13-10'	19	TSB-AR-10-0'MS S	29		39	
10	TSB-AR-10-0'	20	TSB-AR-10-0'MSD	30		40	

LDC #: 17590 B3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of ___
Reviewer: JVC
2nd Reviewer: ___

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)
Please see qualifications below for all questions answered "N" Not applicable questions are identified as "N/A".

What type or calibration verification calculation was performed? ✓ %D or ___ RPD

Y N N/A Were Evaluation mix standards run before initial calibration and before samples?
Y N N/A Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤15.0% for individual breakdowns)?
Y N N/A Was at least one standard run daily to verify the working curve?
Y N N/A Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤15.0%?

Level ~~IV~~ Only
Y N N/A Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Column	Compound	%D (Limit ≤ 15.0)	RT (Limits)	Associated Samples	Qualifications
	9/13/07	KCAL950	Col. B	C (+)	16.0	( )	1 - 5	J+ dets /A
						( )		
						( )		
	9/13/07	KCAL 964	Col. B	F (+)	15.1	( )	6 - 9	
				M (+)	15.1	( )	↓	
						( )		
						( )		
	9/24/07	KCAL152	Col. B	E (+)	18.4	( )	16 - 17	
			↓	P (+)	42.8	( )		
				Q (+)	46.1	( )		
			Col. A	H (+)	16.4	( )		
				I (+)	16.8	( )		
				K (+)	20.3	( )		
			✓	L (+)	15.5	( )	✓	✓
						( )		
		KCAL153	Col. A	FF (+)	18.9	( )	✓	
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		

A. alpha-BHC
B. beta-BHC
C. delta-BHC
D. gamma-BHC
E. Heptachlor
F. Aldrin
G. Heptachlor epoxide
H. Endosulfan I
I. Dieldrin
J. 4,4'-DDE
K. Endrin
L. Endosulfan II
M. 4,4'-DDD
N. Endosulfan sulfate
O. 4,4'-DDT
P. Methoxychlor
Q. Endrin ketone
R. Endrin aldehyde
S. alpha-Chlordane
T. gamma-Chlordane
U. Toxaphene
V. Aroclor-1016
W. Aroclor-1221
X. Aroclor-1232
Y. Aroclor-1242
Z. Aroclor-1248
AA. Aroclor-1254
BB. Aroclor-1260
CC. DB 608
DD. DB 1701
EE. 2,4'-DDE
FF. Chlordane-Technical
GG. ___
HH. ___
II. ___
JJ. ___

CONCAL.3S

LDC #: 17590B3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

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

METHOD: ___ GC ___ HPLC

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

Level IV/D Only

Y N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?
Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results?
Y N N/A Did the percent difference of detected compounds between two columns./detectors ≤40%?
If no, please see findings bellow.

#	Compound Name	Sample ID	%RPD/%D Between Two Columns/Detectors Limit (≤ 40%)	Qualifications
	J	14	124.4	J dets/A
	R	↓	103.4	↓
	EE	↓	115.6	↓
				↓
	EE	17	137.7	↓

Comments: See sample calculation verification worksheet for recalculations

LDC #: 17590B3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: GC Pesticides/PCBs (EPA SW846 Method 8081/8082)

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

Compound	Concentration (ug/kg)		RPD
	3	4	
B	5.9	5.9	0 (≤ 1.8 Diff)

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

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 22, 2007

Matrix: Soil/Water

Parameters: Chlorinated Pesticides

Validation Level: EPA Level III & IV

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I100142

Sample Identification

RINSATE 2
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'**

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 18 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 8081A for Chlorinated Pesticides.

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 XIV.

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.

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

II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
9/24/07	KCAL152	B	Heptachlor Methoxychlor Endrin ketone	18.4 42.8 46.1	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'**	J+ (all detects) J+ (all detects) J+ (all detects)	A

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
9/24/07	KCAL152	A	Endosulfan I Dieldrin Endrin Endosulfan II	16.4 16.8 20.3 15.5	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'**	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A
9/24/07	KCAL166	B	Heptachlor Endrin	24.5 18.4	TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'**	J+ (all detects) J+ (all detects)	A
9/24/07	KCAL166	A	alpha-BHC gamma-BHC beta-BHC delta-BHC Heptachlor Aldrin Heptachlor epoxide gamma-Chlordane alpha-Chlordane Endosulfan I 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II 4,4'-DDT Methoxychlor Endosulfan sulfate Endrin ketone	17.3 17.6 15.7 19.8 16.9 16.9 18.4 16.4 15.8 18.4 17.8 21.0 26.6 18.8 19.3 20.3 20.4 19.4 19.3	TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'**	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) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P
9/25/07	KCAL176	B	Heptachlor Endrin	18.5 18.0	TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'** 7257070MB	J+ (all detects) J+ (all detects)	A
9/25/07	KCAL176	A	alpha-BHC gamma-BHC beta-BHC delta-BHC Heptachlor Aldrin Heptachlor epoxide gamma-Chlordane alpha-Chlordane Endosulfan I 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II Endosulfan sulfate Endrin ketone	19.5 19.2 17.1 21.2 15.5 18.9 19.9 18.1 17.2 19.3 18.1 22.0 24.9 18.8 19.7 18.7 17.7	TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'** 7257070MB	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) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Sample "RINSATE 2" was identified as a rinsate. No chlorinated pesticide contaminants were found in this blank.

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	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
TSB-BJ-06-0'**	B	Decachlorobiphenyl	257 (57-144)	All TCL compounds	J+ (all detects)	P

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 within QC limits.

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Pesticide Cleanup Checks

a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XI. Target Compound Identification

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 Reported CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed.

The sample results for detected compounds from the two columns were within 40% difference with the following exceptions:

Sample	Compound	%D	Flag	A or P
TSB-BJ-06-0'**	2,4'-DDE	92.8	J (all detects)	A
TSB-BJ-02-0'**	4,4'-DDT	75.5	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Overall Assessment of Data

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

XIV. 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 chlorinated pesticides were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**				
beta-BHC	10	17	52 (≤50)	-	-	-
4,4'-DDE	4.4	8.2	-	3.8 (≤1.7)	-	-
4,4'-DDT	3.6	7.3	-	3.7 (≤1.7)	-	-
2,4'-DDE	2.2	3.5	-	1.3 (≤1.7)	-	-

BRC Parcel 4A/4B Sampling Event
Chlorinated Pesticides - Data Qualification Summary - SDG F7I100142

SDG	Sample	Compound	Flag	A or P	Reason
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'**	Heptachlor Methoxychlor Endrin ketone Endosulfan I Dieldrin Endrin Endosulfan II	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-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'**	Heptachlor Endrin	J+ (all detects) J+ (all detects)	A	Continuing calibration (%D)
F7I100142	TSB-AJ-03-0'** TSB-AJ-03-10'** TSB-BJ-06-0'** TSB-BJ-06-10'**	alpha-BHC gamma-BHC beta-BHC delta-BHC Heptachlor Aldrin Heptachlor epoxide gamma-Chlordane alpha-Chlordane Endosulfan I 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II 4,4'-DDT Methoxychlor Endosulfan sulfate Endrin ketone	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) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P	Continuing calibration (%D)

SDG	Sample	Compound	Flag	A or P	Reason
F7I100142	TSB-BJ-01-0'** TSB-BJ-01-10' TSB-BJ-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'** 7257070MB	alpha-BHC gamma-BHC beta-BHC delta-BHC Heptachlor Aldrin Heptachlor epoxide gamma-Chlordane alpha-Chlordane Endosulfan I 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II Endosulfan sulfate Endrin ketone	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) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P	Continuing calibration (%D)
F7I100142	TSB-BJ-06-0'**	All TCL compounds	J+ (all detects)	P	Surrogate spikes (%R)
F7I100142	TSB-BJ-06-0'**	2,4'-DDE	J (all detects)	A	Compound quantitation and CRQLs (%D)
F7I100142	TSB-BJ-02-0'**	4,4'-DDT	J (all detects)	A	Compound quantitation and CRQLs (%D)

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

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

LDC #: 17590C3
SDG #: F7I100142
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

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

METHOD: GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

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: 9/07/07
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	% RSD r
IV.	Continuing calibration/ICV	SW	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	Rinsate 1, TSB-AR-10-0 (F7I070120); TSB-BR-05-0 (F7I110258)
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation and reported CRQLs	SW	Not reviewed for Level III validation.
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	*D1 = 2, 3 D2 = 7, 8
XV.	Field blanks	ND	R = 1

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

Soil + Water

1	RINSATE 2	W	11	TSB-AJ-03-10'**	S	21	7256067 MB	31	
2	TSB-AR-06-0'	D1 S	12	TSB-BJ-06-0'**		22	7254275	32	
3	TSB-AR-06-0'-Dup	D1	13	TSB-BJ-06-10'**		23	7257070	33	
4	TSB-AR-06-10'		14	TSB-BJ-01-0'**		24		34	
5	TSB-AJ-01-0'**		15	TSB-BJ-01-10'		25		35	
6	TSB-AJ-01-10'**		16	TSB-BJ-02-0'**		26		36	
7	TSB-AJ-02-0'**	D2	17	TSB-BJ-02-10'**		27		37	
8	TSB-AJ-02-0'-Dup**	D2	18	TSB-BR-06-0'**		28		38	
9	TSB-AJ-02-10'**		19	TSB-BR-06-10'**		29		39	
10	TSB-AJ-03-0'**		20			30		40	

LDC #: 17590 C3
SDG #: See Cover

VALIDATION FINDINGS CHECKLIST

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

Method: Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/ECD instrument performance check				
Was the instrument performance found to be acceptable?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) $\leq$ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?	✓			
Did the initial calibration meet the curve fit acceptance criteria?	✓			
Were the RT windows properly established?	✓			
Were the required standard concentrations analyzed in the initial calibration?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ✓%D or ___%R	✓			
Were Evaluation mix standards analyzed prior to the initial calibration and sample analysis?	✓			
Were endrin and 4,4'-DDT breakdowns $\leq$ 15%.0 for individual breakdown in the Evaluation mix standards?	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) $\leq$ 15%.0 or percent recovieries 85-115%?		✓		
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Were extract cleanup blanks analyzed with every batch requiring clean-up?	✓			
Was there contamination in the method blanks or clean-up blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?		✓		
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?		✓		
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	

LDC #: 17590 C3
SDG #: See Cover

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
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?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions, dry weight factors, and clean-up activities 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.	✓			
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.		✓		

LDC #: 175903
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 3
Reviewer: JVG
2nd Reviewer: [signature]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)
Please see qualifications below for all questions answered "N" Not applicable questions are identified as "N/A".

What type or calibration verification calculation was performed? ✓ %D or ___ RPD

(Y) N N/A — Were Evaluation mix standards run before initial calibration and before samples?
(Y) N N/A — Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤15.0% for individual breakdowns)?
(Y) N N/A — Was at least one standard run daily to verify the working curve?
Y (N) N/A — Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤15.0%?

Level IV/D Only
(Y) N N/A — Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Column	Compound	%D (Limit ≤ 15.0)	RT (Limits)	Associated Samples	Qualifications
	9/24/07	KCAL 152	Col. B	E (+)	18.4	( )	2-9	J+ dets / A
				P (+)	42.8	( )		
				Q (+)	46.1	( )		
			Col. A	H (+)	16.4	( )		
				I (+)	16.8	( )		
				K (+)	20.3	( )		
				L (+)	15.5	( )		
						( )		
		KCAL 153	Col. A	GG (+)	18.9	( )		
						( )		
						( )		
	9/24/07	KCAL 166	Col. B	E (+)	24.5	( )	10 - 13	J+ dets / A
				K (+)	18.4	( )		J+ dets / P
			Col. A	A (+)	17.3	( )		
				D	17.6	( )		
				B	15.7	( )		
				C	19.8	( )		
				E	16.9	( )		
				F	16.9	( )		
				G	18.4	( )		
				T	16.4	( )		
				S	15.8	( )		
				H	18.4	( )		

A. alpha-BHC
B. beta-BHC
C. delta-BHC
D. gamma-BHC
E. Heptachlor
F. Aldrin
G. Heptachlor epoxide
H. Endosulfan I
I. Dieldrin
J. 4,4'-DDE
K. Endrin
L. Endosulfan II
M. 4,4'-DDD
N. Endosulfan sulfate
O. 4,4'-DDT
P. Methoxychlor
Q. Endrin ketone
R. Endrin aldehyde
S. alpha-Chlordane
T. gamma-Chlordane
U. Toxaphene
V. Aroclor-1016
W. Aroclor-1221
X. Aroclor-1232
Y. Aroclor-1242
Z. Aroclor-1248
AA. Aroclor-1254
BB. Aroclor-1260
CC. DB 608
DD. DB 1701
EE. 2,4'-DDE
FF. 2,4'-DDD
GG. Technical Chlordane
HH. ___
II. ___
JJ. ___

CONCAL.3S

LDC #: 175903
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 2 of 3
Reviewer: JVC
2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)
Please see qualifications below for all questions answered "N" Not applicable questions are identified as "N/A".

What type or calibration verification calculation was performed? ✓%D or ___ RPD

(X) N N/A Were Evaluation mix standards run before initial calibration and before samples?
(Y) N N/A Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤15.0% for individual breakdowns)?
(Y) N N/A Was at least one standard run daily to verify the working curve?
Y (N) N/A Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤15.0%?

Level IV/D Only
(Y) N N/A Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Column	Compound	%D (Limit ≤ 15.0)	RT (Limits)	Associated Samples	Qualifications
	9/24/07	KCAL166	Col. A	J (+)	17.8	( )	10-13	J+ dets/P
	(Continued from p. 1)			I (+)	21.0	( )		
				K (+)	26.6	( )		
				M (+)	18.8	( )		
				L (+)	19.3	( )		
				O (+)	20.3	( )		
				P (+)	20.4	( )		
				N (+)	19.4	( )		
				Q (+)	19.3	( )		
						( )		
	9/25/07	KCAL176	Col. B	E (+)	18.5	( )	14-19, 7257070MB	J+ dets/A
				K (+)	18.0	( )		
			Col. A	A	19.5	( )		J+ dets/P
				~~B~~ D	19.2	( )		
				B	17.1	( )		
				C	21.2	( )		
				E	15.5	( )		
				F	18.9	( )		
				G	19.9	( )		
				I	18.1	( )		
				S	17.2	( )		
				H	19.3	( )		
				J	18.1	( )		

A. alpha-BHC
B. beta-BHC
C. delta-BHC
D. gamma-BHC
E. Heptachlor
F. Aldrin
G. Heptachlor epoxide
H. Endosulfan I
I. Dieldrin
J. 4,4'-DDE
K. Endrin
L. Endosulfan II
M. 4,4'-DDD
N. Endosulfan sulfate
O. 4,4'-DDT
P. Methoxychlor
Q. Endrin ketone
R. Endrin aldehyde
S. alpha-Chlordane
T. gamma-Chlordane
U. Toxaphene
V. Aroclor-1016
W. Aroclor-1221
X. Aroclor-1232
Y. Aroclor-1242
Z. Aroclor-1248
AA. Aroclor-1254
BB. Aroclor-1260
CC. DB 608
DD. DB 1701
EE. _____
FF. _____
GG. _____
HH. _____
II. _____
JJ. _____

LDC #: 17590C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)
Please see qualifications below for all questions answered "N" Not applicable questions are identified as "N/A".

What type or calibration verification calculation was performed? ✓ %D or ___ RPD

(Y) N N/A Were Evaluation mix standards run before initial calibration and before samples?
(Y) N N/A Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤15.0% for individual breakdowns)?
(Y) N N/A Was at least one standard run daily to verify the working curve?
Y (N) N/A Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤15.0%?

Level IV/D Only
(Y) N N/A Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Column	Compound	%D (Limit ≤ 15.0)	RT (Limits)	Associated Samples	Qualifications
	9/25/07	KCAL176	Col. A	I (+)	22.0	( )	14-19, 7257070MB	J+ dets / P
	(Continued from p.2)			K	24.9	( )	↓	↓
				M	18.8	( )		
				L	19.7	( )		
				N	18.7	( )		
				Q	17.7	( )	↓	↓
						( )		
						( )		
						( )		
						( )		
						( )		
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						( )		
						( )		
						( )		
						( )		
						( )		
						( )		

A. alpha-BHC
B. beta-BHC
C. delta-BHC
D. gamma-BHC
E. Heptachlor
F. Aldrin
G. Heptachlor epoxide
H. Endosulfan I
I. Dieldrin
J. 4,4'-DDE
K. Endrin
L. Endosulfan II
M. 4,4'-DDD
N. Endosulfan sulfate
O. 4,4'-DDT
P. Methoxychlor
Q. Endrin ketone
R. Endrin aldehyde
S. alpha-Chlordane
T. gamma-Chlordane
U. Toxaphene
V. Aroclor-1016
W. Aroclor-1221
X. Aroclor-1232
Y. Aroclor-1242
Z. Aroclor-1248
AA. Aroclor-1254
BB. Aroclor-1260
CC. DB 608
DD. DB 1701
EE. ___
FF. ___
GG. ___
HH. ___
II. ___
JJ. ___

LDC #: 17596 C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

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

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

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

(Y) N N/A Were surrogates spiked into all samples, standards and blanks?

Y (N) N/A Did all surrogate percent recoveries (%R) meet the QC limits?

#	Date	Sample ID	Column	Surrogate Compound	%R (Limits)	Qualifications
		1x	CH, B	B	259 (57-144)	J+ dets / p
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
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					( )	
					( )	

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	Tetrachoro-m-xylene			
B	Decachlorobiphenyl			

LDC #: 17590 C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

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

METHOD: ✓ GC ___ HPLC

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

Level IV/D Only

Y N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?
Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results?
Y N N/A Did the percent difference of detected compounds between two columns./detectors ≤40%?
If no, please see findings bellow.

#	Compound Name	Sample ID	%RPD/%D Between Two Columns/Detectors Limit (≤ 40%)	Qualifications
	EE	1x	92.8	J dets /A
	O	16	75.5	↓

Comments: See sample calculation verification worksheet for recalculations

LDC #: 17590C33
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: JV6
2nd reviewer:

METHOD: GC Pesticides/PCBs (EPA SW846 Method 8081/8082)

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

Compound	Concentration (ug/kg)		RPD (Parent only)
	7	8	
B	10	17	52 (≤50% RPD) J dets/A
J	4.4	8.2	3.8 (≤1.7 Diff)
O	3.6	7.3	3.7
EE	2.2	3.5	1.3 —

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 17590 C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVC
2nd Reviewer: [illegible]

METHOD: GC / HPLC

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

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (0.1 std)	Recalculated CF (0.1 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	9/19/07	H (Col. A)	525062820	525062820	563432612	563432612	4.985	4.985
			P ↓	205159230	205159230	22415506	22415506	7.923	7.923
			H (Col. B)	131684190	131684190	140970230	140970230	4.448	4.448
2			P ↓	27746040	2774604	3129313	3129313	7.838	7.838
3									
4									

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 #: 17590C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 7
Reviewer: JVG
2nd Reviewer: ~~9~~

METHOD: GC / HPLC

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

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	KCAL138	9/24/07	H (Col. A)	0.0250	0.0277	0.0277	10.8	10.8
			P		0.0271	0.0271	8.2	8.2
			H (Col. B)		0.0263	0.0263	5.2	5.2
2			P		0.0257	0.0257	2.9	2.8
3	KCAL152	9/24/07	H (Col. B)		0.0274	0.0274	9.5	9.5
			P		0.0357	0.0357	42.8	42.8
			H (Col. A)		0.0291	0.0291	16.4	16.4
4			P		0.0287	0.0287	14.7	14.7

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 #: 17590 C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

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

METHOD: GC / HPLC

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

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	KCAL166	9/24/07	H (Cal. A)	0.0250	0.0296	0.0296	18.4	18.4
			P		0.0301	0.0301	20.4	20.4
			H (Cal. B)		0.0277	0.0277	10.9	10.9
2			P		0.0279	0.0279	11.7	11.7
	KCAL176	9/25/07	H (Cal. A)		0.0298	0.0298	19.3	19.3
3			P		0.0287	0.0287	14.8	14.8
			H (Cal. B)		0.0287	0.0287	12.8	12.8
			P		0.0268	0.0268	7.2	7.2
4								

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 #: 17590C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

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

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

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: #5

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene	Col. B	0.020	0.01772	89	89	0
Tetrachloro-m-xylene						
Decachlorobiphenyl			0.01775	89	89	
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Notes:

LDC #: 17590C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: JVZ
2nd Reviewer:

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

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 = Concentration

RPD = | MS - MSD | * 2/(MS + MSD)

MS = Matrix spike percent recovery; MSD = Matrix spike duplicate percent recovery

MS/MSD samples: TSB-AR-10-0 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
gamma-BHC	16.9	16.9	0	15.6	15.5	92	92	92	92	0.66	0.6
4,4'-DDT	↓	↓	↓	17.5	18.6	103	103.5	110	110	6.3	6.1

Comments: Refer ot 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 #: 17590 C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

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

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample 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 = Concentration

RPD = | LCS - LCSD | * 2/(LCS + LCSD)

LCS = Laboratory control sample percent recovery
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 725 7070 LCS

Compound	Spike Added (ng/kg)		Spiked Sample Concentration (ng/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
gamma-BHC	16.7	NA	14.9	NA	89	89				
4,4'-DDT	↓	↓	16.4	↓	98	98				

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

LDC #: 17590C3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JVC
2nd reviewer: V

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

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?

Example: col. B

Sample I.D. # 7 B :

Conc. = $\frac{(2817793)\ (10\ ml)\ (1000)}{(93980680)\ (30.29g)\ (0.784)}$

= ~~18.90~~ 10.06

≈ 10 ug/kg

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

Note: _____

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 22, 2007

Matrix: Soil/Water

Parameters: Chlorinated Pesticides

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I110258

Sample Identification

TSB-BR-05-0'
TSB-BR-05-10'
TSB-BR-04-0'
TSB-BR-04-0'(FD)
TSB-BR-04-10'
TSB-BJ-03-0'
TSB-BJ-03-0'(FD)
TSB-BJ-03-10'
TSB-BJ-05-0'
TSB-BJ-05-0'RE
TSB-BJ-05-10'
TSB-BJ-05-10'RE
TSB-BR-01-0'
TSB-BR-01-0'RE
TSB-BR-01-10'
TSB-BJ-04-0'
TSB-BJ-04-10'
TSB-BR-02-0'
TSB-BR-02-10'
TSB-BR-03-0'
TSB-BR-03-0'RE
TSB-BR-03-10'
RINSATE 3
TSB-BR-05-0'MS
TSB-BR-05-0'MSD
TSB-BR-02-0'MS
TSB-BR-02-0'MSD

Introduction

This data review covers 26 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 8081A for Chlorinated Pesticides.

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 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.

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. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of single and multicomponent compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for selected compounds.

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
9/25/07	KCAL176	B	Heptachlor Endrin	18.5 18.0	TSB-BR-05-0' TSB-BR-05-0'MS 7257070MB	J+ (all detects) J+ (all detects)	A

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
9/25/07	KCAL176	A	alpha-BHC gamma-BHC beta-BHC delta-BHC Heptachlor Aldrin Heptachlor epoxide gamma-Chlordane alpha-Chlordane Endosulfan I 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II Endosulfan sulfate Endrin ketone	19.5 19.2 17.1 21.2 15.5 18.9 19.9 18.1 17.2 19.3 18.1 22.0 24.9 18.8 19.7 18.7 17.7	TSB-BR-05-0' TSB-BR-05-0'MS 7257070MB	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) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P
9/26/07	KCAL271	A	Toxaphene	31.2	TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10'	J+ (all detects)	A
9/26/07	KCAL271	B	Toxaphene	23.9	TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10'	J+ (all detects)	A
9/26/07	KCAL279	A	Toxaphene	30.9	TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-0'RE TSB-BR-03-10' TSB-BR-02-0'MS TSB-BR-02-0'MSD 7262137MB	J+ (all detects)	A
9/26/07	KCAL279	B	Toxaphene	26.8	TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-0'RE TSB-BR-03-10' TSB-BR-02-0'MS TSB-BR-02-0'MSD 7262137MB	J+ (all detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Sample "RINSATE 3" was identified as a rinsate. No chlorinated pesticide contaminants were found in this blank.

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	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
TSB-BJ-05-0'	Not specified	Decachlorobiphenyl	266 (57-144)	All TCL compounds	J+ (all detects)	A
TSB-BJ-05-10'	Not specified	Decachlorobiphenyl	153 (57-144)	All TCL compounds	J+ (all detects)	A
TSB-BR-01-0'	Not specified	Decachlorobiphenyl	199 (57-144)	All TCL compounds	J+ (all detects)	A
TSB-BR-01-10'	Not specified	Decachlorobiphenyl	173 (57-144)	All TCL compounds	J+ (all detects)	P
TSB-BJ-04-0'	Not specified	Decachlorobiphenyl	184 (57-144)	All TCL compounds	J+ (all detects)	P
TSB-BR-03-0'	Not specified	Decachlorobiphenyl	178 (57-144)	All TCL compounds	J+ (all detects)	A

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Laboratory Control Samples (LCS)

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

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Pesticide Cleanup Checks

a. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

b. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XI. Target Compound Identification

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and Reported CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
TSB-BJ-05-0' TSB-BR-01-0'	beta-BHC 4,4'-DDE 4,4'-DDT 2,4'-DDE	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects) J (all detects) J (all detects)	A
TSB-BJ-05-10'	beta-BHC 4,4'-DDE	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects) J (all detects)	A
TSB-BR-03-0'	beta-BHC	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

The sample results for detected compounds from the two columns were within 40% difference with the following exceptions:

Sample	Compound	%D	Flag	A or P
TSB-BJ-05-10'	4,4'-DDD 2,4'-DDT	64.1 40.8	J (all detects) J (all detects)	A
TSB-BR-01-0'	Endrin Endrin aldehyde	54.9 116.1	J (all detects) J (all detects)	A
TSB-BR-01-10'	2,4'-DDE	76.9	J (all detects)	A
TSB-BJ-04-0'	2,4'-DDE 2,4'-DDD	81.5 53.3	J (all detects) J (all detects)	A

Raw data were not reviewed for this SDG.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this 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 chlorinated pesticides were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)				
beta-BHC	9.9	11	11 (≤50)	-	-	-
4,4'-DDE	1.8U	1.8	-	0 (≤1.8)	-	-

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
beta-BHC	130	27	-	103 (≤19)	-	-
4,4'-DDE	28	18U	-	0 (≤19)	-	-

BRC Parcel 4A/4B Sampling Event
Chlorinated Pesticides - Data Qualification Summary - SDG F7I110258

SDG	Sample	Compound	Flag	A or P	Reason
F7I110258	TSB-BR-05-0'	Heptachlor Endrin	J+ (all detects) J+ (all detects)	A	Continuing calibration (%D)
F7I110258	TSB-BR-05-0'	alpha-BHC gamma-BHC beta-BHC delta-BHC Heptachlor Aldrin Heptachlor epoxide gamma-Chlordane alpha-Chlordane Endosulfan I 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II Endosulfan sulfate Endrin ketone	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) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P	Continuing calibration (%D)
F7I110258	TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-0'RE TSB-BR-03-10'	Toxaphene	J+ (all detects)	A	Continuing calibration (%D)
F7I110258	TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-03-0'	All TCL compounds	J+ (all detects)	A	Surrogate spikes (%R)
F7I110258	TSB-BR-01-10' TSB-BJ-04-0'	All TCL compounds	J+ (all detects)	P	Surrogate spikes (%R)
F7I110258	TSB-BJ-05-0' TSB-BR-01-0'	beta-BHC 4,4'-DDE 4,4'-DDT 2,4'-DDE	J (all detects) J (all detects) J (all detects) J (all detects)	A	Compound quantitation and CRQLs
F7I110258	TSB-BJ-05-10'	beta-BHC 4,4'-DDE	J (all detects) J (all detects)	A	Compound quantitation and CRQLs
F7I110258	TSB-BR-03-0'	beta-BHC	J (all detects)	A	Compound quantitation and CRQLs

SDG	Sample	Compound	Flag	A or P	Reason
F7I110258	TSB-BJ-05-10'	4,4'-DDD 2,4'-DDT	J (all detects) J (all detects)	A	Compound quantitation and CRQLs (%D)
F7I110258	TSB-BR-01-0'	Endrin Endrin aldehyde	J (all detects) J (all detects)	A	Compound quantitation and CRQLs (%D)
F7I110258	TSB-BR-01-10'	2,4'-DDE	J (all detects)	A	Compound quantitation and CRQLs (%D)
F7I110258	TSB-BJ-04-0'	2,4'-DDE 2,4'-DDD	J (all detects) J (all detects)	A	Compound quantitation and CRQLs (%D)

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

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

LDC #: 17590D3
SDG #: F7I110258
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/17/07
Page: 1 of 1
Reviewer: SVG
2nd Reviewer: g

METHOD: GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

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.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	%RSD r
IV.	Continuing calibration/ICV	SW	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	SW	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	D_1 = 3, 4 D_2 = 6, 7
XV.	Field blanks	ND	R = 23

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: Soil + Water

1	TSB-BR-05-0'	S	11	TSB-BJ-05-10'	S	21	TSB-BR-03-0'RE	S	31	7257070	MB
2	TSB-BR-05-10'		12	TSB-BJ-05-10'RE		22	TSB-BR-03-10'		32	7256062	MB
3	TSB-BR-04-0'	D_1	13	TSB-BR-01-0'		23	RINSATE 3	W	33	7262137	MB
4	TSB-BR-04-0'(FD)	D_1	14	TSB-BR-01-0'RE		24	TSB-BR-05-0'MS	S	34		
5	TSB-BR-04-10'		15	TSB-BR-01-10'		25	TSB-BR-05-0'MSD		35		
6	TSB-BJ-03-0'	D_2	16	TSB-BJ-04-0'		26	TSB-BR-02-0'MS		36		
7	TSB-BJ-03-0'(FD)	D_2	17	TSB-BJ-04-10'		27	TSB-BR-02-0'MSD		37		
8	TSB-BJ-03-10'		18	TSB-BR-02-0'		28			38		
9	TSB-BJ-05-0'		19	TSB-BR-02-10'		29			39		
10	TSB-BJ-05-0'RE		20	TSB-BR-03-0'		30			40		

LDC #: 17590 D3
SDG #: Sulphur

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of
Reviewer: JVC
2nd Reviewer:

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)
Please see qualifications below for all questions answered "N" Not applicable questions are identified as "N/A".

What type or calibration verification calculation was performed? ___ %D or ___ RPD

(N) N/A — Were Evaluation mix standards run before initial calibration and before samples?

(N) N/A — Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤15.0% for individual breakdowns)?

(N) N/A — Was at least one standard run daily to verify the working curve?

Y (N) N/A — Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤15.0%?

Level IV/D Only

Y N (N/A) — Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Column	Compound	%D (Limit ≤ 15.0)	RT (Limits)	Associated Samples	Qualifications
	9/25/07	KCAL 176	Col. B	E (+)	18.5	( )	1, 24, 725 7070 MB	J+ dets /A
			↓	K (+)	18.0	( )		↓
			Col. A	A (+)	19.5	( )		J+ dets/P
				D (+)	19.2	( )		
				B (+)	17.1	( )		
				C (+)	21.2	( )		
				E (+)	15.5	( )		
				F (+)	18.9	( )		
				G (+)	19.9	( )		
				T (+)	18.1	( )		
				S (+)	17.2	( )		
				H (+)	19.3	( )		
				J (+)	18.1	( )		
				I (+)	22.0	( )		
				K (+)	24.9	( )		
				M (+)	18.8	( )		
				L (+)	19.7	( )		
				N (+)	18.7	( )		
				Q (+)	17.7	( )	↓	↓
						( )		
	9/26/07	KCAL 271	Col. A	U (+)	31.2	( )	13, 15 = 17	J+ dets /A
			Col. B	U (+)	23.9	( )	↓	↓
						( )		

A. alpha-BHC
B. beta-BHC
C. delta-BHC
D. gamma-BHC
E. Heptachlor
F. Aldrin
G. Heptachlor epoxide
H. Endosulfan I
I. Dieldrin
J. 4,4'-DDE
K. Endrin
L. Endosulfan II
M. 4,4'-DDD
N. Endosulfan sulfate
O. 4,4'-DDT
P. Methoxychlor
Q. Endrin ketone
R. Endrin aldehyde
S. alpha-Chlordane
T. gamma-Chlordane
U. Toxaphene
V. Aroclor-1016
W. Aroclor-1221
X. Aroclor-1232
Y. Aroclor-1242
Z. Aroclor-1248
AA. Aroclor-1254
BB. Aroclor-1260
CC. DB 608
DD. DB 1701
EE. 2,4'-DDE
FF. ~~2,4'-DDD~~
GG. 2,4'-DDT
HH.
II.
JJ.

CONCAL.3S

LDC #: 17590D3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET

Continuing Calibration

Page: 2 of 2
Reviewer: JVG
2nd Reviewer: Q

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

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

What type or calibration verification calculation was performed? ✓ %D or ___ RPD

[✓ Y] N N/A Were Evaluation mix standards run before initial calibration and before samples?
[✓ Y] N N/A Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤15.0% for individual breakdowns)?
[✓ Y] N N/A Was at least one standard run daily to verify the working curve?
Y [✓ N] N/A Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤15.0%?

Level ~~IV/D~~ Only

Y N [✓ N/A] Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Column	Compound	%D (Limit ≤ 15.0)	RT (Limits)	Associated Samples	Qualifications
	9/26/07	KCAL 279	Col. A	U (+)	30.9	( )	18-22, 26, 27,	J + dets /A
			Col. B	U (+)	26.8	( )	7262137 MB	↓
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
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						( )		
						( )		
						( )		

A. alpha-BHC
B. beta-BHC
C. delta-BHC
D. gamma-BHC
E. Heptachlor
F. Aldrin
G. Heptachlor epoxide
H. Endosulfan I
I. Dieldrin
J. 4,4'-DDE
K. Endrin
L. Endosulfan II
M. 4,4'-DDD
N. Endosulfan sulfate
O. 4,4'-DDT
P. Methoxychlor
Q. Endrin ketone
R. Endrin aldehyde
S. alpha-Chlordane
T. gamma-Chlordane
U. Toxaphene
V. Aroclor-1016
W. Aroclor-1221
X. Aroclor-1232
Y. Aroclor-1242
Z. Aroclor-1248
AA. Aroclor-1254
BB. Aroclor-1260
CC. DB 608
DD. DB 1701
EE.________
FF.________
GG.________
HH.________
II.________
JJ.________

LDC #: 17590 D3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

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

Y N N/A Were surrogates spiked into all samples, standards and blanks?
Y N N/A Did all surrogate percent recoveries (%R) meet the QC limits?

#	Date	Sample ID	Column	Surrogate Compound	%R (Limits)	Qualifications
		6 (10X)	Not specified	A	DO (73-116)	No qual
				B	(57-144)	
		7 (10X)		A		
				B		
		9		B	266 (57-144)	J+ dets / A
		10		A	DO (73-116)	No qual
				B	(57-144)	
		11		B	153	J+ dets / A
		12 (4X)		B	178	No qual
		13		B	199	J+ dets / A
		14 (10X)		A	DO	No qual
				B		
		15		B	173	J+ dets / A

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	Tetrachoro-m-xylene			
B	Decachlorobiphenyl			

LDC #: 17590 D3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Reviewer: JVC
2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

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

(Y) N N/A Were surrogates spiked into all samples, standards and blanks?
Y (N) N/A Did all surrogate percent recoveries (%R) meet the QC limits?

#	Date	Sample ID	Column	Surrogate Compound	%R (Limits)	Qualifications
		16	Not specified	B	184 (57-144)	J+ dets / P
		20	↓	B	178 (↓)	J+ dets / A
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	Tetrachoro-m-xylene			
B	Decachlorobiphenyl			

LDC #: 17590D3
SDG #: See Cover

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

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

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?
[✓ Y] N N/A Was a MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
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
		26/27	E	( )	168 (63-146)	( )	18	No qual (MS in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 17590 D3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

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

METHOD: ✓ GC ___ HPLC

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

Level IV/D Only

Y N (N/A) Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?
Y N (N/A) Did the reported results for detected target compounds agree within 10.0% of the recalculated results?
Y (N) N/A Did the percent difference of detected compounds between two columns./detectors ≤40%?
If no, please see findings bellow.

#	Compound Name	Sample ID	%RPD/%D Between Two Columns/Detectors Limit (≤ 40%)	Qualifications
	M	11	64.1	J dets/A
	GG (2,4'-DDT)	↓	40.8	↓
	K	13	54.9	
	R	↓	116.1	
	~~EE~~ (2,4'-~~DDE~~)	15	76.9	
	↓			
	~~EE~~	16	81.5	
	~~FF~~ (2,4'-~~DDD~~)	↓	53.3	↓

Comments: See sample calculation verification worksheet for recalculations

LDC #: 19590 D3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

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

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081,8082)

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

Level IV/D Only

Y N N/A Were CRQLs adjusted for sample dilutions, dry weight factors, etc.?

Y N N/A Did the reported results for detected target compounds agree within 10.0% of the recalculated results?

#	Compound Name	Finding	Associated Samples	Qualifications
	B, J, O, EE	> cal range	9, 13	J dets /A
	B, J		11	
	B		20	

Comments: See sample calculation verification worksheet for recalculations

COMQUANewPest.wpd

LDC #: 17590D3
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: JTB
2nd reviewer: [signature]

METHOD: GC Pesticides/PCBs (EPA SW846 Method 8081/8082)

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

Compound	Concentration (ug/kg) 3	Concentration (ug/kg) 4	RPD
B	9.9	11	11 (≤ 50% RPD)
J	1.8 U	1.8	0 (≤ 1.8 Diff)

Compound	Concentration (ug/kg) 6	Concentration (ug/kg) 7	RPD (Parent only)
B	130	27	103 (≤ 19 Diff) J 10% A
J	28	18 U	0 (≤ 19 Diff) —

Compound	Concentration ( )	Concentration ( )	RPD

Compound	Concentration ( )	Concentration ( )	RPD

BRC Parcel 4A/4BSampling Event
Data Validation Reports
LDC# 17590

Metals

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 15, 2007

Matrix: Soil

Parameters: Metals

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I060284

Sample Identification

TSB-AR-01-0'
TSB-AR-01-0'-Dup
TSB-AR-01-10'
TSB-AR-02-0'
TSB-AR-02-10'
TSB-AR-04-0'
TSB-AR-04-10'
TSB-AR-05-0'
TSB-AR-05-10'
TSB-AR-07-0'
TSB-AR-07-10'
TSB-AR-04-0'MS
TSB-AR-04-0'MSD

Introduction

This data review covers 13 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Mercury, Nickel, Niobium, Palladium, Phosphorus, Platinum, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Tungsten, Uranium, Vanadium, and Zinc, and Zirconium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods 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.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
10/1/07	ICV (16:17)	Zirconium	112.6 (90-110)	TSB-AR-01-10' PB	J+ (all detects)	P
10/1/07	CCV (19:34)	Zirconium	112.4 (90-110)	TSB-AR-01-10' PB	J+ (all detects)	P
10/1/07	CCV (20:54)	Zirconium	113.6 (90-110)	TSB-AR-01-10' PB	J+ (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Aluminum Boron Copper Phosphorus Potassium Silicon Sodium Thallium Zinc	1.8 mg/Kg 1.8 mg/Kg 0.15 mg/Kg 3.2 mg/Kg 2.7 mg/Kg 11.1 mg/Kg 6.2 mg/Kg 0.087 mg/Kg 1.8 mg/Kg	All samples in SDG F7I060284
ICB/CCB	Chromium Thallium Titanium Tungsten Lithium	0.6 ug/L 0.7 ug/L 0.3 ug/L 0.6 ug/L 12.9 ug/L	All samples in SDG F7I060284

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AR-01-0' (2X)	Boron Thallium Tungsten	7.0 mg/Kg 0.28 mg/Kg 0.61 mg/Kg	21.0U mg/Kg 0.42U mg/Kg 1.1U mg/Kg
TSB-AR-01-0'-Dup (2X)	Boron Thallium Tungsten	7.0 mg/Kg 0.21 mg/Kg 0.45 mg/Kg	21.5U mg/Kg 0.43U mg/Kg 1.1U mg/Kg
TSB-AR-01-10' (2X)	Boron Thallium Tungsten	9.8 mg/Kg 0.17 mg/Kg 0.46 mg/Kg	21.1U mg/Kg 0.42U mg/Kg 1.1U mg/Kg
TSB-AR-02-0' (2X)	Boron Thallium Tungsten	4.7 mg/Kg 0.23 mg/Kg 0.42 mg/Kg	20.5U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AR-02-10' (2X)	Boron Thallium Tungsten	11.9 mg/Kg 0.18 mg/Kg 0.43 mg/Kg	21.2U mg/Kg 0.42U mg/Kg 1.1U mg/Kg
TSB-AR-04-0' (2X)	Boron Thallium Tungsten	6.4 mg/Kg 0.24 mg/Kg 0.38 mg/Kg	20.6U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AR-04-10' (2X)	Boron Thallium Tungsten	8.5 mg/Kg 0.40 mg/Kg 0.63 mg/Kg	20.9U mg/Kg 0.42U mg/Kg 1.0U mg/Kg
TSB-AR-05-0' (2X)	Boron Thallium Tungsten	6.8 mg/Kg 0.27 mg/Kg 0.43 mg/Kg	20.6U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AR-05-10' (2X)	Boron Thallium Tungsten	9.5 mg/Kg 0.22 mg/Kg 0.46 mg/Kg	22.1U mg/Kg 0.44U mg/Kg 1.1U mg/Kg
TSB-AR-07-0' (2X)	Boron Thallium Tungsten	4.8 mg/Kg 0.20 mg/Kg 0.37 mg/Kg	21.1U mg/Kg 0.42U mg/Kg 1.1U mg/Kg
TSB-AR-07-10' (2X)	Boron Thallium Tungsten	10.9 mg/Kg 0.17 mg/Kg 0.40 mg/Kg	21.0U mg/Kg 0.42U mg/Kg 1.1U mg/Kg

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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 within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
TSB-AR-04-0'MS/MSD (All samples in SDG F7I060284)	Antimony	50.0 (75-125)	49.4 (75-125)	-	J- (all detects)	A
	Barium	70.7 (75-125)	-	-	UJ (all non-detects)	
	Chromium	69.0 (75-125)	-	-		
	Nickel	71.7 (75-125)	70.5 (75-125)	-		
	Phosphorus	-	74.6 (75-125)	-		
	Zinc	69.6 (75-125)	-	-		
TSB-AR-04-0'MS/MSD (All samples in SDG F7I060284)	Sulfur	-	125.4 (75-125)	-	J+ (all detects)	A
	Niobium	158.8 (75-125)	165.9 (75-125)	-	J+ (all detects)	

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
TSB-AR-04-0'L	Phosphorus	13.3 (≤10)	All samples in SDG F7I060284	J (all detects)	A

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

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

XIII. Field Duplicates

Samples TSB-AR-01-0' and TSB-AR-01-0'-Dup were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-01-0'	TSB-AR-01-0'-Dup				
Aluminum	8810	7810	12 (≤50)	-	-	-
Antimony	0.13	0.11U	-	0.02 (≤1.1)	-	-
Arsenic	3.1	3.7	-	0.6 (≤2.2)	-	-
Barium	180	158	13 (≤50)	-	-	-
Beryllium	0.52	0.52	-	0 (≤0.22)	-	-
Boron	7.0	7.0	-	0 (≤21.5)	-	-
Cadmium	0.088	0.096	-	0.008 (≤0.11)	-	-
Calcium	27100	37500	32 (≤50)	-	-	-
Chromium	10.9	9.6	-	1.3 (≤2.2)	-	-
Cobalt	6.8	7.4	8 (≤50)	-	-	-
Copper	12.5	15.5	21 (≤50)	-	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-01-0'	TSB-AR-01-0'-Dup				
Iron	13600	14500	6 (≤50)	-	-	-
Lead	9.3	8.6	8 (≤50)	-	-	-
Magnesium	9790	9540	3 (≤50)	-	-	-
Manganese	327	313	4 (≤50)	-	-	-
Molybdenum	0.50	0.48	-	0.02 (≤1.1)	-	-
Nickel	15.4	16.7	8 (≤50)	-	-	-
Niobium	2.0	1.6U	-	0.4 (≤5.4)	-	-
Palladium	0.52	0.44	-	0.08 (≤0.22)	-	-
Phosphorus	807	1020	23 (≤50)	-	-	-
Potassium	2900	2490	15 (≤50)	-	-	-
Silicon	829	770	7 (≤50)	-	-	-
Silver	0.11	0.11	-	0 (≤0.43)	-	-
Sodium	668	584	13 (≤50)	-	-	-
Strontium	204	187	9 (≤50)	-	-	-
Thallium	0.28	0.21	-	0.07 (≤0.43)	-	-
Tin	0.47	0.45	-	0.02 (≤0.43)	-	-
Titanium	608	650	7 (≤50)	-	-	-
Tungsten	0.61	0.45	-	0.16 (≤1.1)	-	-
Uranium	1.1	1.3	17 (≤50)	-	-	-
Vanadium	33.8	36.9	9 (≤50)	-	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-01-0'	TSB-AR-01-0'-Dup				
Zinc	30.2	32.4	7 (≤50)	-	-	-
Zirconium	19.8	22.5	-	2.7 (≤21.5)	-	-
Lithium	14.5	13.8	-	0.7 (≤10.7)	-	-

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-01-0'	TSB-AR-01-0'-Dup				
Mercury	13.0	14.0	-	1 (≤35.8)	-	-

BRC NE Sampling Event, July 2007
Metals - Data Qualification Summary - SDG F7I060284

SDG	Sample	Analyte	Flag	A or P	Reason
F7I060284	TSB-AR-01-10'	Zirconium	J+ (all detects)	P	Calibration (ICV/CCV %R)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Antimony Barium Chromium Nickel Phosphorus Zinc	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Sulfur Niobium	J+ (all detects) J+ (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Phosphorus	J (all detects)	A	ICP serial dilution (%D)

BRC NE Sampling Event, July 2007
Metals - Laboratory Blank Data Qualification Summary - SDG F7I060284

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I060284	TSB-AR-01-0' (2X)	Boron Thallium Tungsten	21.0U mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I060284	TSB-AR-01-0'-Dup (2X)	Boron Thallium Tungsten	21.5U mg/Kg 0.43U mg/Kg 1.1U mg/Kg	A
F7I060284	TSB-AR-01-10' (2X)	Boron Thallium Tungsten	21.1U mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A
F7I060284	TSB-AR-02-0' (2X)	Boron Thallium Tungsten	20.5U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I060284	TSB-AR-02-10' (2X)	Boron Thallium Tungsten	21.2U mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A
F7I060284	TSB-AR-04-0' (2X)	Boron Thallium Tungsten	20.6U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I060284	TSB-AR-04-10' (2X)	Boron Thallium Tungsten	20.9U mg/Kg 0.42U mg/Kg 1.0U mg/Kg	A
F7I060284	TSB-AR-05-0' (2X)	Boron Thallium Tungsten	20.6U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I060284	TSB-AR-05-10' (2X)	Boron Thallium Tungsten	22.1U mg/Kg 0.44U mg/Kg 1.1U mg/Kg	A
F7I060284	TSB-AR-07-0' (2X)	Boron Thallium Tungsten	21.1U mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A
F7I060284	TSB-AR-07-10' (2X)	Boron Thallium Tungsten	21.0U mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A

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

No Sample Data Qualified in this SDG

LDC #: 17590A4 **VALIDATION COMPLETENESS WORKSHEET** Date: 1/13/07
SDG #: F7I060284 Level III Page: 1 of 1
Laboratory: Test America Reviewer: MK
2nd Reviewer:

METHOD: Metals (EPA SW 846 Method 6020/6010B/7000)

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.	Calibration	SW	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	SW	3 MS/MSD
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	Mit reviewed
IX.	Furnace Atomic Absorption QC	N	Mit utilized
X.	ICP Serial Dilution	SW	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(1, 2)
XIV.	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: Soil

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

Notes:

LDC #: 17590A4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer:
2nd reviewer:

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-11	Soil	[✓ Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,] __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
12,13	Soil	[✓ Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,] __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, __ __
1-11	Soil	[✓ Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,] __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
12,13	Soil	[✓ Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,] __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, __ __
		Analysis Method
ICP		[✓ Li, S,] __ __
ICP-MS		[✓ Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,] __ __
ICP-MS		[✓ Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Zr,] __ __
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-

Comments: [✓ Mercury by CVAA if performed]
Nb: Niobium, Pd: Palladium, P: Phosphorus, Pt: Platinum, S: Sulfur, W: Tungsten, U: Uranium, Zr: Zirconium

LDC #: 19590A4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Calibration

Page: 1 of 1
Reviewer: MH
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Y N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?

Y N N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% for all analytes except mercury (80-120%) and cyanide (85-115%)?

LEVEL IV ONLY:

Y N N/A Was a midrange cyanide standard distilled?

Y N N/A Are all correlation coefficients ≥0.995?

Y N N/A Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recalculation Worksheet for recalculations.

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualification of Data
1	10/1/07 (16:17)	ICV (~~ICB~~)	Zn	112.6	~~1~~ 3, PB	J+ UJ/P
2	10/1/07 (1934)	CCV		112.4		
3	10/1/07 (2054)	CCV		113.6		

Comments:

LDC #: 175904
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/Kg

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: ICP:100X, ICP/MS:200X, Hg:166.7X
Associated Samples: All

					Sample Identification									
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	1 (2X)	2 (2X)	3 (2X)	4 (2X)	5 (2X)	6 (2X)	7 (2X)	8 (2X)	9 (2X)	10 (2X)
Al	1.8													
B	1.8				7.0 / 21.0	7.0 / 21.5	9.8 / 21.1	4.7 / 20.5	11.9 / 21.2	6.4 / 20.6	8.5 / 20.9	6.8 / 20.6	9.5 / 22.1	4.8 / 21.1
Cr			0.6											
Cu	0.15													
P	3.2													
K	2.7													
Si	11.1													
Na	6.2													
Tl	0.087		0.7		0.28 / 0.42	0.21 / 0.43	0.17 / 0.42	0.23 / 0.41	0.18 / 0.42	0.24 / 0.41	0.40 / 0.42	0.27 / 0.41	0.22 / 0.44	0.20 / 0.42
Ti			0.3											
W			0.6		0.61 / 1.1	0.45 / 1.1	0.46 / 1.1	0.42 / 1.0	0.43 / 1.1	0.38 / 1.0	0.63 / 1.0	0.43 / 1.0	0.46 / 1.1	0.37 / 1.1
Zn	1.8													
Li			12.9											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 175904
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Soil preparation factor applied: ICP:100X, ICP/MS:200X, Hg:166.7X
Sample Concentration units, unless otherwise noted: mg/Kg
Associated Samples: All

					Sample Identification									
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	11 (2X)									
Al	1.8													
B	1.8				10.9 / 21.0									
Cr			0.6											
Cu	0.15													
P	3.2													
K	2.7													
Si	11.1													
Na	6.2													
Tl	0.087		0.7		0.17 / 0.42									
Ti			0.3											
W			0.6		0.40 / 1.1									
Zn	1.8													
Li			12.9											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 15550A4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: MM
2nd Reviewer:

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

(Y) N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	12/13	Soil	S		125.4		All	J+ UJ/A
			Sb	50.0	49.4			J/UJ/A
			Ba	70.7				
			Cr	69.0				
			Ni	~~70.5~~ 71.7	70.5			
			Nb	158.8	165.9			J+ UJ/A
			P		74.6			J-/UJ/A
			Zn	69.6				

Comments:

LDC #: 17590A4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

Page: 1 of 1
Reviewer: LW
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

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

(Y) N N/A If analyte concentrations were > 50X the MDL (ICP) ,or >100X the MDL (ICP/MS), was a serial dilution analyzed?
Y (N) N/A Were ICP serial dilution percent differences (%D) ≤10%?
Y (N) N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	Diluted Sample ID	Matrix	Analyte	%D (Limits)	Associated Samples	Qualifications
1		6	Soil	P	13.3	All	J+ / A

Comments:

LDC#: 17590A4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: WM
2nd Reviewer:

METHOD: Metals (EPA Method 6020/6010B/7000)

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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	1	2				
Aluminum	8810	7810	12			
Antimony	0.13	0.11U		0.02	(≤1.1)	
Arsenic	3.1	3.7		0.6	(≤2.2)	
Barium	180	158	13			
Beryllium	0.52	0.52		0	(≤0.22)	
Boron	7.0	7.0		0	(≤21.5)	
Cadmium	0.088	0.096		0.008	(≤0.11)	
Calcium	27100	37500	32			
Chromium	10.9	9.6		1.3	(≤2.2)	
Cobalt	6.8	7.4	8			
Copper	12.5	15.5	21			
Iron	13600	14500	6			
Lead	9.3	8.6	8			
Magnesium	9790	9540	3			
Manganese	327	313	4			
Molybdenum	0.50	0.48		0.02	(≤1.1)	
Nickel	15.4	16.7	8			
Niobium	2.0	1.6U		0.4	(≤5.4)	
Palladium	0.52	0.44		0.08	(≤0.22)	

LDC#: 17590A4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: ___ of ___
Reviewer: _____
2nd Reviewer: _____

METHOD: Metals (EPA Method 6020/6010B/7000)

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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	1	2				
Phosphorus	807	1020	23			
Potassium	2900	2490	15			
Silicon	829	770	7			
Silver	0.11	0.11		0	(≤0.43)	
Sodium	668	584	13			
Strontium	204	187	9			
Thallium	0.28	0.21		0.07	(≤0.43)	
Tin	0.47	0.45		0.02	(≤0.43)	
Titanium	608	650	7			
Tungsten	0.61	0.45		0.16	(≤1.1)	
Uranium	1.1	1.3	17			
Vanadium	33.8	36.9	9			
Zinc	30.2	32.4	7			
Zirconium	19.8	22.5		2.7	(≤21.5)	
Lithium	14.5	13.8		0.7	(≤10.7)	
Mercury (ug/Kg)	13.0	14.0		1	(≤35.8)	

Laboratory Data Consultants, Inc.
Data Validation Report

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

Collection Date: September 6, 2007

LDC Report Date: October 15, 2007

Matrix: Soil/Water

Parameters: Metals

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I070120

Sample Identification

TSB-AR-08-0'
TSB-AR-08-10'
TSB-AR-11-0'
TSB-AR-11-0'-Dup
TSB-AR-11-10'
TSB-AR-14-0'
TSB-AR-14-10'
TSB-AR-13-0'
TSB-AR-13-10'
TSB-AR-10-0'
TSB-AR-10-10'
TSB-AR-9-0'
TSB-AR-9-10'
TSB-AR-12-0'
TSB-AR-12-10'
TSB-AR-3-0'
TSB-AR-3-10'
RINSATE 1
TSB-AR-13-0'MS
TSB-AR-13-0'MSD
RINSATE 1MS
RINSATE 1MSD

Introduction

This data review covers 19 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Mercury, Nickel, Niobium, Palladium, Phosphorus, Platinum, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Tungsten, Uranium, Vanadium, and Zinc, and Zirconium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods 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.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
10/1/07	ICV (16:17)	Zirconium	112.6 (90-110)	RINSATE 1 TSB-AR-10-10' PBS	J+ (all detects)	P
10/1/07	CCV (16:54)	Zirconium	112.7 (90-110)	All water samples in SDG F7I070120	J+ (all detects)	P
10/1/07	CCV (18:14)	Zirconium	112.9 (90-110)	All water samples in SDG F7I070120	J+ (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Antimony Chromium Copper Iron Sodium Tin	0.20 ug/L 3.0 ug/L 0.27 ug/L 16.8 ug/L 7.7 ug/L 0.58 ug/L	All water samples in SDG F7I070120
ICB/CCB	Tungsten	0.5 ug/L	All water samples in SDG F7I070120

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Barium Boron Calcium Chromium Iron Nickel Phosphorus Potassium Sodium Tin Zinc	0.052 mg/Kg 1.6 mg/Kg 20.8 mg/Kg 0.63 mg/Kg 2.0 mg/Kg 0.11 mg/Kg 2.5 mg/Kg 1.0 mg/Kg 4.9 mg/Kg 0.029 mg/Kg 2.7 mg/Kg	All soil samples in SDG F7I070120
ICB/CCB	Chromium Thallium Titanium Lithium	1.0 ug/L 0.4 ug/L 0.3 ug/L 12.1 ug/L	All soil samples in SDG F7I070120

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RINSATE 1	Chromium Copper Iron Tin Tungsten	2.4 ug/L 1.4 ug/L 13.1 ug/L 0.79 ug/L 1.3 ug/L	10U ug/L 1.0U ug/L 50.0U ug/L 2.0U ug/L 5.0U ug/L
TSB-AR-08-0'	Boron	5.7 mg/Kg	20.5U mg/Kg
TSB-AR-08-10'	Boron	7.9 mg/Kg	21.3U mg/Kg
TSB-AR-11-0'	Boron	5.3 mg/Kg	20.7U mg/Kg
TSB-AR-11-0'-Dup	Boron	5.0 mg/Kg	20.7U mg/Kg
TSB-AR-11-10'	Boron	10.8 mg/Kg	21.2U mg/Kg
TSB-AR-14-0'	Boron	6.0 mg/Kg	20.8U mg/Kg
TSB-AR-14-10'	Boron	9.2 mg/Kg	21.4U mg/Kg
TSB-AR-13-0'	Boron	5.9 mg/Kg	20.5U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AR-13-10'	Boron Thallium Zinc Lithium (5X)	12.6 mg/Kg 0.36 mg/Kg 26.5 mg/Kg 23.2 mg/Kg	21.2U mg/Kg 0.42U mg/Kg 26.5J+ mg/Kg 26.4U mg/Kg
TSB-AR-10-0'	Boron Thallium	5.2 mg/Kg 0.15 mg/Kg	20.8U mg/Kg 0.42U mg/Kg
TSB-AR-10-10'	Boron	10.2 mg/Kg	21.0U mg/Kg
TSB-AR-9-0'	Boron	3.7 mg/Kg	20.5U mg/Kg
TSB-AR-9-10'	Boron	7.8 mg/Kg	20.7U mg/Kg
TSB-AR-12-0'	Boron	11.1 mg/Kg	20.6U mg/Kg
TSB-AR-12-10'	Boron Zinc	15.0 mg/Kg 26.9 mg/Kg	20.6U mg/Kg 26.9J+ mg/Kg
TSB-AR-3-0'	Boron	5.3 mg/Kg	20.3U mg/Kg
TSB-AR-3-10'	Boron	15.9 mg/Kg	20.9U mg/Kg

Sample "RINSATE 1" was identified as a rinsate. No metal contaminants were found in this blank with the following exceptions:

Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
RINSATE 1	9/6/07	Aluminum Boron Cadmium Calcium Chromium Copper Iron Magnesium Niobium Phosphorus Silicon Sodium Strontium Thallium Tin Tungsten	10.7 ug/L 356 ug/L 0.050 ug/L 44.4 ug/L 2.4 ug/L 1.4 ug/L 13.4 ug/L 6.7 ug/L 3.5 ug/L 41.6 ug/L 658 ug/L 325 ug/L 0.25 ug/L 0.80 ug/L 0.79 ug/L 1.3 ug/L	All soil samples in SDG F7I070120

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AR-08-0'	Boron Niobium Silicon Sodium Tungsten	5.7 mg/Kg 1.8 mg/Kg 648 mg/Kg 401 mg/Kg 0.55 mg/Kg	20.5U mg/Kg 5.1U mg/Kg 648J+ mg/Kg 401J+ mg/Kg 1.0U mg/Kg
TSB-AR-08-10'	Boron Silicon Tungsten	7.9 mg/Kg 305 mg/Kg 0.46 mg/Kg	21.3U mg/Kg 305J+ mg/Kg 1.1U mg/Kg
TSB-AR-11-0'	Boron Silicon Sodium Tungsten	5.3 mg/Kg 636 mg/Kg 433 mg/Kg 0.31 mg/Kg	20.7U mg/Kg 636J+ mg/Kg 434J+ mg/Kg 1.0U mg/Kg
TSB-AR-11-0'-Dup	Boron Silicon Sodium Tungsten	5.0 mg/Kg 560 mg/Kg 403 mg/Kg 0.37 mg/Kg	20.7U mg/Kg 560J+ mg/Kg 403J+ mg/Kg 1.0U mg/Kg
TSB-AR-11-10'	Boron Cadmium Silicon Tungsten	10.8 mg/Kg 0.10 mg/Kg 293 mg/Kg 0.42 mg/Kg	21.2U mg/Kg 0.11U mg/Kg 293J+ mg/Kg 1.1U mg/Kg
TSB-AR-14-0'	Boron Cadmium Silicon Sodium	6.0 mg/Kg 0.086 mg/Kg 607 mg/Kg 542 mg/Kg	20.8U mg/Kg 0.10U mg/Kg 607J+ mg/Kg 542J+ mg/Kg
TSB-AR-14-10'	Boron Cadmium Silicon Tungsten	9.2 mg/Kg 0.074 mg/Kg 374 mg/Kg 0.22 mg/Kg	21.4U mg/Kg 0.11U mg/Kg 374J+ mg/Kg 1.1U mg/Kg
TSB-AR-13-0'	Boron Silicon Sodium Tungsten	5.9 mg/Kg 690 mg/Kg 244 mg/Kg 0.29 mg/Kg	20.5U mg/Kg 690J+ mg/Kg 244U mg/Kg 1.0U mg/Kg
TSB-AR-13-10'	Boron Silicon Thallium Tungsten	12.6 mg/Kg 366 mg/Kg 0.36 mg/Kg 0.70 mg/Kg	21.2U mg/Kg 366J+ mg/Kg 0.42U mg/Kg 1.1U mg/Kg
TSB-AR-10-0'	Boron Silicon Sodium Thallium Tungsten	5.2 mg/Kg 421 mg/Kg 459 mg/Kg 0.15 mg/Kg 0.47 mg/Kg	20.8U mg/Kg 421J+ mg/Kg 459J+ mg/Kg 0.42U mg/Kg 1.0U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AR-10-10'	Boron Cadmium Silicon Tungsten	10.2 mg/Kg 0.083 mg/Kg 243 mg/Kg 0.41 mg/Kg	21.0U mg/Kg 0.11U mg/Kg 243J+ mg/Kg 1.1U mg/Kg
TSB-AR-9-0'	Boron Cadmium Silicon Sodium Tungsten	3.7 mg/Kg 0.098 mg/Kg 265 mg/Kg 342 mg/Kg 0.33 mg/Kg	20.5U mg/Kg 0.10U mg/Kg 265J+ mg/Kg 342J+ mg/Kg 1.0U mg/Kg
TSB-AR-9-10'	Boron Cadmium Silicon Tungsten	7.8 mg/Kg 0.078 mg/Kg 279 mg/Kg 0.34 mg/Kg	20.7U mg/Kg 0.10U mg/Kg 279J+ mg/Kg 1.0U mg/Kg
TSB-AR-12-0'	Boron Cadmium Silicon Sodium Tungsten	11.1 mg/Kg 0.095 mg/Kg 477 mg/Kg 649 mg/Kg 0.36 mg/Kg	20.6U mg/Kg 0.10U mg/Kg 477J+ mg/Kg 649J+ mg/Kg 1.0U mg/Kg
TSB-AR-12-10'	Boron Cadmium Silicon Tungsten	15.0 mg/Kg 0.072 mg/Kg 434 mg/Kg 0.39 mg/Kg	20.6U mg/Kg 0.10U mg/Kg 434J+ mg/Kg 1.0U mg/Kg
TSB-AR-3-0'	Boron Silicon Sodium Tungsten	5.3 mg/Kg 638 mg/Kg 363 mg/Kg 0.34 mg/Kg	20.3U mg/Kg 638J+ mg/Kg 363J+ mg/Kg 1.0U mg/Kg
TSB-AR-3-10'	Boron Cadmium Silicon Tungsten	15.9 mg/Kg 0.081 mg/Kg 496 mg/Kg 0.36 mg/Kg	20.9U mg/Kg 0.10U mg/Kg 496J+ mg/Kg 1.0U mg/Kg

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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 within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
TSB-AR-13-0'MS/MSD (All soil samples in SDG F7I070120)	Antimony Chromium Magnesium Nickel	54.4 (75-125) - - -	59.2 (75-125) 51.1 (75-125) 69.3 (75-125) 70.5 (75-125)	- - - -	J- (all detects) UJ (all non-detects)	A
TSB-AR-13-0'MS/MSD (All soil samples in SDG F7I070120)	Strontium	193.9 (75-125)	46.6 (75-125)	-	J (all detects) UJ (all non-detects)	A
TSB-AR-13-0'MS/MSD (All soil samples in SDG F7I070120)	Barium Niobium Phosphorus	150.2 (75-125) 167.3 (75-125) 132.0 (75-125)	140.3 (75-125) 219.1 (75-125) -	- - -	J+ (all detects) J+ (all detects) J+ (all detects)	A
TSB-AR-13-0'MS/MSD (All soil samples in SDG F7I070120)	Zinc	-14.6 (75-125)	-18.1 (75-125)	-	J- (all detects) R (all non-detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

LCS ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
LCS	Niobium	117.7 (85-115)	All water samples in SDG F7I070120	J+ (all detects)	P

VIII. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
TSB-AR-13-0'MS/MSD (All soil samples in SDG F7I070120)	Antimony Chromium Magnesium Nickel	54.4 (75-125) - - -	59.2 (75-125) 51.1 (75-125) 69.3 (75-125) 70.5 (75-125)	- - - -	J- (all detects) UJ (all non-detects)	A
TSB-AR-13-0'MS/MSD (All soil samples in SDG F7I070120)	Strontium	193.9 (75-125)	46.6 (75-125)	-	J (all detects) UJ (all non-detects)	A
TSB-AR-13-0'MS/MSD (All soil samples in SDG F7I070120)	Barium Niobium Phosphorus	150.2 (75-125) 167.3 (75-125) 132.0 (75-125)	140.3 (75-125) 219.1 (75-125) -	- - -	J+ (all detects) J+ (all detects) J+ (all detects)	A
TSB-AR-13-0'MS/MSD (All soil samples in SDG F7I070120)	Zinc	-14.6 (75-125)	-18.1 (75-125)	-	J- (all detects) R (all non-detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

LCS ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
LCS	Niobium	117.7 (85-115)	All water samples in SDG F7I070120	J+ (all detects)	P

VIII. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-11-0'	TSB-AR-11-0'-Dup				
Iron	13500	13800	2 (≤50)	-	-	-
Lead	11.8	11.7	1 (≤50)	-	-	-
Magnesium	7430	7430	0 (≤50)	-	-	-
Manganese	400	422	5 (≤50)	-	-	-
Molybdenum	0.58	0.64	-	0.06 (≤1)	-	-
Nickel	13.8	14.7	6 (≤50)	-	-	-
Palladium	0.39	0.34	-	0.05 (≤0.21)	-	-
Phosphorus	1020	1130	10 (≤50)	-	-	-
Potassium	3820	3240	16 (≤50)	-	-	-
Silicon	636	560	13 (≤50)	-	-	-
Silver	0.12	0.11	-	0.01 (≤0.42)	-	-
Sodium	433	403	7 (≤50)	-	-	-
Strontium	155	144	7 (≤50)	-	-	-
Tin	0.59	0.61	-	0.02 (≤0.42)	-	-
Titanium	713	745	4 (≤50)	-	-	-
Tungsten	0.31	0.37	-	0.06 (≤1)	-	-
Uranium	0.95	0.83	-	0.12 (≤0.21)	-	-
Vanadium	32.7	33.6	3 (≤50)	-	-	-
Zinc	33.3	34.7	4 (≤50)	-	-	-
Zirconium	22.9	22.4	-	0.5 (≤20.7)	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-11-0'	TSB-AR-11-0'-Dup				
Lithium	11.1	13.4	-	2.3 (≤10.4)	-	-

BRC NE Sampling Event, July 2007
Metals - Data Qualification Summary - SDG F7I070120

SDG	Sample	Analyte	Flag	A or P	Reason
F7I070120	TSB-AR-10-10' RINSATE 1	Zirconium	J+ (all detects)	P	Calibration (ICV/CCV %R)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10'	Antimony Chromium Magnesium Nickel	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10'	Strontium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

SDG	Sample	Analyte	Flag	A or P	Reason
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10'	Barium Niobium Phosphorus	J+ (all detects) J+ (all detects) J+ (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10'	Zinc	J- (all detects) R (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I070120	RINSATE 1	Niobium	J+ (all detects)	A	Laboratory control samples (%R)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10'	Phosphorus	J (all detects)	A	ICP serial dilution (%D)

BRC NE Sampling Event, July 2007
Metals - Laboratory Blank Data Qualification Summary - SDG F7I070120

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I070120	RINSATE 1	Chromium Copper Iron Tin Tungsten	10U ug/L 1.0U ug/L 50.0U ug/L 2.0U ug/L 5.0U ug/L	A
F7I070120	TSB-AR-08-0'	Boron	20.5U mg/Kg	A
F7I070120	TSB-AR-08-10'	Boron	21.3U mg/Kg	A
F7I070120	TSB-AR-11-0'	Boron	20.7U mg/Kg	A
F7I070120	TSB-AR-11-0'-Dup	Boron	20.7U mg/Kg	A
F7I070120	TSB-AR-11-10'	Boron	21.2U mg/Kg	A
F7I070120	TSB-AR-14-0'	Boron	20.8U mg/Kg	A
F7I070120	TSB-AR-14-10'	Boron	21.4U mg/Kg	A
F7I070120	TSB-AR-13-0'	Boron	20.5U mg/Kg	A
F7I070120	TSB-AR-13-10'	Boron Thallium Zinc Lithium (5X)	21.2U mg/Kg 0.42U mg/Kg 26.5J+ mg/Kg 26.4U mg/Kg	A
F7I070120	TSB-AR-10-0'	Boron Thallium	20.8U mg/Kg 0.42U mg/Kg	A
F7I070120	TSB-AR-10-10'	Boron	21.0U mg/Kg	A
F7I070120	TSB-AR-9-0'	Boron	20.5U mg/Kg	A
F7I070120	TSB-AR-9-10'	Boron	20.7U mg/Kg	A
F7I070120	TSB-AR-12-0'	Boron	20.6U mg/Kg	A
F7I070120	TSB-AR-12-10'	Boron Zinc	20.6U mg/Kg 26.9J+ mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I070120	TSB-AR-3-0'	Boron	20.3U mg/Kg	A
F7I070120	TSB-AR-3-10'	Boron	20.9U mg/Kg	A

BRC Parcel 4A/4B Sampling Event
Metals - Field Blank Data Qualification Summary - SDG F7I070120

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I070120	TSB-AR-08-0'	Boron Niobium Silicon Sodium Tungsten	20.5U mg/Kg 5.1U mg/Kg 648J+ mg/Kg 401J+ mg/Kg 1.0U mg/Kg	A
F7I070120	TSB-AR-08-10'	Boron Silicon Tungsten	21.3U mg/Kg 305J+ mg/Kg 1.1U mg/Kg	A
F7I070120	TSB-AR-11-0'	Boron Silicon Sodium Tungsten	20.7U mg/Kg 636J+ mg/Kg 434J+ mg/Kg 1.0U mg/Kg	A
F7I070120	TSB-AR-11-0'-Dup	Boron Silicon Sodium Tungsten	20.7U mg/Kg 560J+ mg/Kg 403J+ mg/Kg 1.0U mg/Kg	A
F7I070120	TSB-AR-11-10'	Boron Cadmium Silicon Tungsten	21.2U mg/Kg 0.11U mg/Kg 293J+ mg/Kg 1.1U mg/Kg	A
F7I070120	TSB-AR-14-0'	Boron Cadmium Silicon Sodium	20.8U mg/Kg 0.10U mg/Kg 607J+ mg/Kg 542J+ mg/Kg	A
F7I070120	TSB-AR-14-10'	Boron Cadmium Silicon Tungsten	21.4U mg/Kg 0.11U mg/Kg 374J+ mg/Kg 1.1U mg/Kg	A
F7I070120	TSB-AR-13-0'	Boron Silicon Sodium Tungsten	20.5U mg/Kg 690J+ mg/Kg 244U mg/Kg 1.0U mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I070120	TSB-AR-13-10'	Boron Silicon Thallium Tungsten	21.2U mg/Kg 366J+ mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A
F7I070120	TSB-AR-10-0'	Boron Silicon Sodium Thallium Tungsten	20.8U mg/Kg 421J+ mg/Kg 459J+ mg/Kg 0.42U mg/Kg 1.0U mg/Kg	A
F7I070120	TSB-AR-10-10'	Boron Cadmium Silicon Tungsten	21.0U mg/Kg 0.11U mg/Kg 243J+ mg/Kg 1.1U mg/Kg	A
F7I070120	TSB-AR-9-0'	Boron Cadmium Silicon Sodium Tungsten	20.5U mg/Kg 0.10U mg/Kg 265J+ mg/Kg 342J+ mg/Kg 1.0U mg/Kg	A
F7I070120	TSB-AR-9-10'	Boron Cadmium Silicon Tungsten	20.7U mg/Kg 0.10U mg/Kg 279J+ mg/Kg 1.0U mg/Kg	A
F7I070120	TSB-AR-12-0'	Boron Cadmium Silicon Sodium Tungsten	20.6U mg/Kg 0.10U mg/Kg 477J+ mg/Kg 649J+ mg/Kg 1.0U mg/Kg	A
F7I070120	TSB-AR-12-10'	Boron Cadmium Silicon Tungsten	20.6U mg/Kg 0.10U mg/Kg 434J+ mg/Kg 1.0U mg/Kg	A
F7I070120	TSB-AR-3-0'	Boron Silicon Sodium Tungsten	20.3U mg/Kg 638J+ mg/Kg 363J+ mg/Kg 1.0U mg/Kg	A
F7I070120	TSB-AR-3-10'	Boron Cadmium Silicon Tungsten	20.9U mg/Kg 0.10U mg/Kg 496J+ mg/Kg 1.0U mg/Kg	A

LDC #: 17590B4 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/13/07
SDG #: F7I070120 Level III Page: 1 of 1
Laboratory: Test America Reviewer: MM
2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6020/6010B/7000)

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: 9/6/07
II.	Calibration	SW	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	SW	3 MS/MSD
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	SW	
VIII.	Internal Standard (ICP-MS)	N	Not reviewed
IX.	Furnace Atomic Absorption QC	N	not utilized
X.	ICP Serial Dilution	SW	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(3, 4)
XIV.	Field Blanks	SW	R=18

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 Soil except #18, 21, 22 A2

1	TSB-AR-08-0'	11	TSB-AR-10-10'	21	RINSATE 1MS A2	31	
2	TSB-AR-08-10'	12	TSB-AR-9-0'	22	RINSATE 1MSD "	32	
3	TSB-AR-11-0'	13	TSB-AR-9-10'	23	PB	33	
4	TSB-AR-11-0'-Dup	14	TSB-AR-12-0'	24		34	
5	TSB-AR-11-10'	15	TSB-AR-12-10'	25		35	
6	TSB-AR-14-0'	16	TSB-AR-3-0'	26		36	
7	TSB-AR-14-10'	17	TSB-AR-3-10'	27		37	
8	TSB-AR-13-0'	18	RINSATE 1 A2	28		38	
9	TSB-AR-13-10'	19	TSB-AR-13-0'MS	29		39	
10	TSB-AR-10-0'	20	TSB-AR-13-0'MSD	30		40	

Notes: _____

LDC #: 17590B4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer:
2nd reviewer:

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-18	Soil/Rr	[✓ Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,] ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
19-22	Soil/Rr	[✓ Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,] ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, ___ ___
1-18	Soil/Rr	[✓ Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,] ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___
19-22	Soil/Rr	[✓ Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,] ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr, ___ ___

		Analysis Method
ICP		[✓ Li, S] ___ ___
ICP-MS		[✓ Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,] ___ ___
ICP-MS		[✓ Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Zr,] ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻

Comments: [✓ Mercury by CVAA if performed]
Nb: Niobium, Pd: Palladium, P: Phosphorus, Pt: Platinum, S: Sulfur, W: Tungsten, U: Uranium, Zr: Zirconium

LDC #: 19590B4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Calibration

Page: 1 of 1
Reviewer: MH
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?

Y (N) N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% for all analytes except mercury (80-120%) and cyanide (85-115%)?

LEVEL IV ONLY:

Y N (N/A) Was a midrange cyanide standard distilled?

Y N (N/A) Are all correlation coefficients ≥0.995?

Y N (N/A) Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recalculation Worksheet for recalculations.

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualification of Data
1	10/1/07 (1617)	ICV	Zr	112.6	All A2, 11, PBS	J+ UJ/P
2	10/1/07 (1654)	CCV	Zr	112.7	All A2	
3	10/1/07 (1814)	CCV	Zr	112.9		

Comments:

LDC #: 17590B4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: ug/L

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied:
Associated Samples: All AQ

Reviewer: MG
2nd Reviewer:

					Sample Identification									
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	18									
Sb		0.20												
Cr		3.0			2.4 / 10.0									
Cu		0.27			1.4 / 1.0									
Fe		16.8			13.1 / 50.0									
Na		7.7												
Sn		0.58			0.79 / 2.0									
W			0.5		1.3 / 5.0									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 17590B4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/Kg

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: ICP:100X, ICP/MS:200X, Hg:166.7X
Associated Samples: All Soil

Reviewer:
2nd Reviewer:

					Sample Identification								
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	1 (2X)	2 (2X)	3 (2X)	4 (2X)	5 (2X)	6 (2X)	7 (2X)	8 (2X)	9 (2X)
Ba	0.052												
B	1.6				5.7 / 20.5	7.9 / 21.3	5.3 / 20.7	5.0 / 20.7	10.8 / 21.2	6.0 / 20.8	9.2 / 21.4	5.9 / 20.5	12.6 / 21.2
Ca	20.8												
Cr	0.63		1.0										
Fe	2.0												
Ni	0.11												
P	2.5												
K	1.0												
Na	4.9												
Tl			0.4										0.36 / 0.42
Sn	0.029												
Ti			0.3										
Zn	2.7			27									26.5J+
Li			12.1										23.2 / 26.4 (5x)

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 17590B4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/Kg

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: ICP:100X, ICP/MS:200X, Hg:166.7X
Associated Samples: All Soil

					Sample Identification									
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	10 (2X)	11 (2X)	12 (2X)	13 (2X)	14 (2X)	15 (2X)	16 (2X)	17 (2X)		
Ba	0.052													
B	1.6				5.2 / 20.8	10.2 / 21.0	3.7 / 20.5	7.8 / 20.7	11.1 / 20.6	15.0 / 20.6	5.3 / 20.3	15.9 / 20.9		
Ca	20.8													
Cr	0.63		1.0											
Fe	2.0													
Ni	0.11													
P	2.5													
K	1.0													
Na	4.9													
Tl			0.4		0.15 / 0.42									
Sn	0.029													
Ti			0.3											
Zn	2.7			27						26.9J+				
Li			12.1											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 17590B4
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MY
2nd Reviewer:

METHOD: Trace Metals (EPA SW846 6010B/6020/7000)
(Y) N N/A Were field blanks identified in this SDG?
(Y) N N/A Were target analytes detected in the field blanks?
Blank units: ug/L **Associated sample units:** mg/Kg
Sampling date: 9 /6 /07 Soil factor applied 200X
Field blank type: (circle one) Field Blank / Rinsate / Other: R Associated Samples: All Soil

Analyte	Blank ID	Sample Identification											
	18	Action Level	1	2	3	4	5	6	7	8	9	10	11
Al	10.7												
B	356	712	5.7 / 20.5	7.9 / 21.3	5.3 / 20.7	5.0 / 20.7	10.8 / 21.2	6.0 / 20.8	9.2 / 21.4	5.9 / 20.5	12.6 / 21.2	5.2 / 20.8	10.2 / 21.0
Cd	0.050						0.10 / 0.11	0.086 / 0.10	0.074 / 0.11				0.083 / 0.11
Ca	44.4												
Cr	2.4												
Cu	1.4	2.8											
Fe	13.4												
Mg	6.7												
Nb	3.5		1.8 / 5.1										
P	41.6	83.2											
Si	658	1316	648J+	305J+	636J+	560J+	293J+	607J+	374J+	690J+	366J+	421J+	243J+
Na	325	650	401J+		433J+	403J+		542J+		244J+		459J+	
Sr	0.25												
Tl	0.80										0.36 / 0.42	0.15 / 0.42	
Sn	0.79												
W	1.3		0.55 / 1.0	0.46 / 1.1	0.31 / 1.0	0.37 / 1.0	0.42 / 1.1		0.22 / 1.1	0.29 / 1.0	0.70 / 1.1	0.47 / 1.0	0.41 / 1.1

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 17590B4
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MM
2nd Reviewer:

METHOD: Trace Metals (EPA SW846 6010B/6020/7000)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target analytes detected in the field blanks?
Blank units: ug/L **Associated sample units:** mg/Kg
Sampling date: 9 /6 /07 Soil factor applied 200X
Field blank type: (circle one) Field Blank / Rinsate / Other: R Associated Samples: All Soil

Analyte	Blank ID	Sample Identification												
	18	Action Level	12	13	14	15	16	17						
Al	10.7													
B	356	712	3.7 / 20.5	7.8 / 20.7	11.1 / 20.6	15.0 / 20.6	5.3 / 20.3	15.9 / 20.9						
Cd	0.050		0.098 / 0.10	0.078 / 0.10	0.095 / 0.10	0.072 / 0.10		0.081 / 0.10						
Ca	44.4													
Cr	2.4													
Cu	1.4	2.8												
Fe	13.4													
Mg	6.7													
Nb	3.5													
P	41.6	83.2												
Si	658	1316	265J+	279J+	477J+	434J+	638J+	496J+						
Na	325	650	342J+		649J+		363J+							
Sr	0.25													
Tl	0.80													
Sn	0.79													
W	1.3		0.33 / 1.0	0.34 / 1.0	0.36 / 1.0	0.39 / 1.0	0.34 / 1.0	0.36 / 1.0						

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 17590B4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: MM
2nd Reviewer:

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y (N) N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	19/20	soil	Sb	54.4	59.2		All soil	J-/UJ/A
			Ba	150.2	140.3			J+/UJ/A
			Nb	167.3	219.1			↓
			P	132.0				↓
			Sr	193.9	46.6			J/UJ/A
			Zn	-14.6	-18.1			J-/R/A
			Cr		51.1			J-/UJ/A
			Mg		69.3			↓
			Ni		70.5			↓
			Ca			49.3 (≤30)		No qual (LES only)
			Sr			37.0 ↓		↓
			Cr			23.5 ↓		↓
			Mb			26.8 ↓		↓

Comments:

LDC #: 19509B4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: MH
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Was a laboratory control sample (LCS) analyzed for each matrix in this SDG?

Y (N) N/A Were all aqueous LCS percent recoveries (%R) within the control limits of ~~80-120~~% and all soil LCS %R within laboratory established control limits. 85-115

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	LCS ID	Matrix	Analyte	%R (limits)	Associated Samples	Qualifications
1	LCS	A2	Nb	117.7	A1 A2	J+ Lt /p

Comments:

LDC #: 19590B4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

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

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

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

(Y) N N/A If analyte concentrations were > 50X the MDL (ICP) ,or >100X the MDL (ICP/MS), was a serial dilution analyzed?
Y (N) N/A Were ICP serial dilution percent differences (%D) ≤10%?
Y (N) N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	Diluted Sample ID	Matrix	Analyte	%D (Limits)	Associated Samples	Qualifications
1		8	Soil	P	11.0	All soil	J+ /A

Comments:

LDC#: 17590B4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: W
2nd Reviewer: Q

METHOD: Metals (EPA Method 6020/6010B/7000)

(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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	3	4				
Aluminum	9050	8400	7			
Antimony	0.19	0.19		0	(≤1)	
Arsenic	3.1	2.6		0.5	(≤2.1)	
Barium	220	213	3			
Beryllium	0.50	0.48		0.02	(≤0.21)	
Boron	5.3	5.0		0.3	(≤20.7)	
Cadmium	0.14	0.14		0	(≤0.1)	
Calcium	19900	19300	3			
Chromium	10.2	11.3		1.1	(≤2.1)	
Cobalt	6.2	6.5	5			
Copper	13.7	16.2	17			
Iron	13500	13800	2			
Lead	11.8	11.7	1			
Magnesium	7430	7430	0			
Manganese	400	422	5			
Molybdenum	0.58	0.64		0.06	(≤1)	
Nickel	13.8	14.7	6			
Palladium	0.39	0.34		0.05	(≤0.21)	
Phosphorus	1020	1130	10			

LDC#: 17590B4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer:
2nd Reviewer:

METHOD: Metals (EPA Method 6020/6010B/7000)

(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 (mg/Kg) 3	Concentration (mg/Kg) 4	RPD (≤50)	Difference	Limits	Qualification (Parent only)
Potassium	3820	3240	16			
Silicon	636	560	13			
Silver	0.12	0.11		0.01	(≤0.42)	
Sodium	433	403	7			
Strontium	155	144	7			
Tin	0.59	0.61		0.02	(≤0.42)	
Titanium	713	745	4			
Tungsten	0.31	0.37		0.06	(≤1)	
Uranium	0.95	0.83		0.12	(≤0.21)	
Vanadium	32.7	33.6	3			
Zinc	33.3	34.7	4			
Zirconium	22.9	22.4		0.5	(≤20.7)	
Lithium	11.1	13.4		2.3	(≤10.4)	

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 15, 2007

Matrix: Soil/Water

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I100142

Sample Identification

RINSATE 2
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-AR-06-0'MS
TSB-AR-06-0'MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 20 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Mercury, Nickel, Niobium, Palladium, Phosphorus, Platinum, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Tungsten, Uranium, Vanadium, and Zinc, and Zirconium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods 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.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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.

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

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
10/1/07	ICV (16:17)	Zirconium	112.6 (90-110)	RINSATE 2 TSB-AJ-02-0'** TSB-BJ-06-10'** TSB-BR-06-10'** PBS	J+ (all detects)	P
10/1/07	CCV (16:54)	Zirconium	112.7 (90-110)	All water samples in SDG F7I100142	J+ (all detects)	P
10/1/07	CCV (18:14)	Zirconium	112.9 (90-110)	All water samples in SDG F7I100142	J+ (all detects)	P
10/1/07	CCV (20:54)	Zirconium	113.6 (90-110)	PB	J+ (all detects)	P
10/1/07	CCV (22:14)	Zirconium	111.4 (90-110)	TSB-AJ-02-0'** PB	J+ (all detects)	P
10/1/07	CCV (23:34)	Zirconium	112.3 (90-110)	TSB-AJ-02-0'** TSB-BJ-06-10'**	J+ (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Antimony Chromium Copper Iron Sodium Tin	0.20 ug/L 3.0 ug/L 0.27 ug/L 16.8 ug/L 7.7 ug/L 0.58 ug/L	All water samples in SDG F7I100142
ICB/CCB	Tungsten	0.5 ug/L	All water samples in SDG F7I100142
PB (prep blank)	Barium Boron Copper Nickel Phosphorus Sodium Zinc	0.068 mg/Kg 1.7 mg/Kg 0.15 mg/Kg 0.14 mg/Kg 2.3 mg/Kg 4.7 mg/Kg 1.8 mg/Kg	All soil samples in SDG F7I100142
ICB/CCB	Chromium Thallium Titanium Tungsten Lithium	0.6 ug/L 0.7 ug/L 0.3 ug/L 0.6 ug/L 15.8 ug/L	All soil samples in SDG F7I100142

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RINSATE 2	Tin Tungsten	0.85 ug/L 1.4 ug/L	2.0U ug/L 5.0U ug/L
TSB-AR-06-0' (2X)	Boron Thallium Tungsten	15.9 mg/Kg 0.24 mg/Kg 0.59 mg/Kg	20.7U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AR-06-0'-Dup (2X)	Boron Thallium Tungsten	16.3 mg/Kg 0.36 mg/Kg 0.59 mg/Kg	20.9U mg/Kg 0.42U mg/Kg 1.0U mg/Kg
TSB-AR-06-10' (2X)	Boron Thallium Tungsten	11.8 mg/Kg 0.24 mg/Kg 0.54 mg/Kg	20.7U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-01-0'** (2X)	Boron Thallium Tungsten	5.8 mg/Kg 0.21 mg/Kg 0.44 mg/Kg	20.5U mg/Kg 0.41U mg/Kg 1.0U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AJ-01-10'** (2X)	Boron Thallium Tungsten	10.9 mg/Kg 0.17 mg/Kg 0.41 mg/Kg	20.8U mg/Kg 0.42U mg/Kg 1.0U mg/Kg
TSB-AJ-02-0'** (2X)	Boron Thallium Tungsten	5.2 mg/Kg 0.19 mg/Kg 0.35 mg/Kg	20.3U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-02-0'-Dup** (2X)	Boron Thallium Tungsten	5.2 mg/Kg 0.18 mg/Kg 0.38 mg/Kg	20.3U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-02-10'** (2X)	Boron Thallium Tungsten	8.1 mg/Kg 0.18 mg/Kg 0.41 mg/Kg	20.6U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-03-0'** (2X)	Boron Thallium Tungsten	5.7 mg/Kg 0.20 mg/Kg 0.56 mg/Kg	20.4U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-03-10'** (2X)	Boron Thallium Tungsten	9.9 mg/Kg 0.16 mg/Kg 0.41 mg/Kg	20.7U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-BJ-06-0'** (2X)	Boron Thallium Tungsten	5.9 mg/Kg 0.16 mg/Kg 0.38 mg/Kg	21.1U mg/Kg 0.42U mg/Kg 1.1U mg/Kg
TSB-BJ-06-10'** (2X)	Boron Tungsten	9.8 mg/Kg 0.43 mg/Kg	23.6U mg/Kg 1.2U mg/Kg
TSB-BJ-01-0'** (2X)	Boron Thallium Tungsten	5.5 mg/Kg 0.20 mg/Kg 0.36 mg/Kg	20.3U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-BJ-01-10' (2X)	Boron Thallium Tungsten	10.7 mg/Kg 0.16 mg/Kg 0.61 mg/Kg	21.2U mg/Kg 0.42U mg/Kg 1.1U mg/Kg
TSB-BJ-02-0'** (2X)	Boron Thallium Tungsten Lithium	6.6 mg/Kg 0.18 mg/Kg 0.46 mg/Kg 14.2 mg/Kg	20.4U mg/Kg 0.41U mg/Kg 1.0U mg/Kg 25.5U mg/Kg
TSB-BJ-02-10'** (2X)	Boron Thallium Tungsten	11.3 mg/Kg 0.16 mg/Kg 0.42 mg/Kg	21.5U mg/Kg 0.43U mg/Kg 1.1U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-BR-06-0'** (2X)	Boron Thallium Tungsten	6.0 mg/Kg 0.16 mg/Kg 0.45 mg/Kg	20.3U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-BR-06-10'** (2X)	Boron Thallium Tungsten	10.3 mg/Kg 0.20 mg/Kg 0.51 mg/Kg	25.0U mg/Kg 0.50U mg/Kg 1.3U mg/Kg

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

Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
RINSATE 2	9/7/07	Boron Calcium Copper Magnesium Molybdenum Niobium Phosphorus Silicon Sodium Strontium Thallium Tin Tungsten	364 ug/L 99.6 ug/L 1.0 ug/L 6.2 ug/L 0.24 ug/L 3.6 ug/L 44.4 ug/L 678 ug/L 343 ug/L 0.40 ug/L 1.4 ug/L 0.85 ug/L 1.4 ug/L	All samples in SDG F7I100142

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AR-06-0'	Boron Molybdenum Silicon Thallium Tungsten	15.9 mg/Kg 0.83 mg/Kg 745 mg/Kg 0.24 mg/Kg 0.59 mg/Kg	20.7U mg/Kg 1.0U mg/Kg 745J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AR-06-0'-Dup	Boron Molybdenum Silicon Thallium Tin Tungsten	16.3 mg/Kg 0.73 mg/Kg 508 mg/Kg 0.36 mg/Kg 0.40 mg/Kg 0.59 mg/Kg	20.9U mg/Kg 1.0U mg/Kg 508J+ mg/Kg 0.42U mg/Kg 0.42U mg/Kg 1.0U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AR-06-10'	Boron Molybdenum Silicon Thallium Tin Tungsten	11.8 mg/Kg 0.69 mg/Kg 544 mg/Kg 0.24 mg/Kg 0.38 mg/Kg 0.54 mg/Kg	20.7U mg/Kg 1.0U mg/Kg 544J+ mg/Kg 0.41U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-01-0'**	Boron Molybdenum Silicon Sodium Thallium Tungsten	5.8 mg/Kg 0.58 mg/Kg 657 mg/Kg 373 mg/Kg 0.21 mg/Kg 0.44 mg/Kg	20.5U mg/Kg 1.0U mg/Kg 657J+ mg/Kg 373J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-01-10'**	Boron Molybdenum Silicon Thallium Tin Tungsten	10.9 mg/Kg 0.71 mg/Kg 737 mg/Kg 0.17 mg/Kg 0.30 mg/Kg 0.41 mg/Kg	20.8U mg/Kg 1.0U mg/Kg 737J+ mg/Kg 0.42U mg/Kg 0.42U mg/Kg 1.0U mg/Kg
TSB-AJ-02-0'**	Boron Molybdenum Silicon Thallium Tin Tungsten	5.2 mg/Kg 0.50 mg/Kg 600 mg/Kg 0.19 mg/Kg 0.31 mg/Kg 0.35 mg/Kg	20.3U mg/Kg 1.0U mg/Kg 600J+ mg/Kg 0.41U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-02-0'-Dup**	Boron Molybdenum Silicon Sodium Thallium Tin Tungsten	5.2 mg/Kg 0.55 mg/Kg 651 mg/Kg 244 mg/Kg 0.18 mg/Kg 0.38 mg/Kg 0.38 mg/Kg	20.3U mg/Kg 1.0U mg/Kg 651J+ mg/Kg 244J+ mg/Kg 0.41U mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-02-10'**	Boron Molybdenum Silicon Sodium Thallium Tungsten	8.1 mg/Kg 0.73 mg/Kg 694 mg/Kg 685 mg/Kg 0.18 mg/Kg 0.41 mg/Kg	20.6U mg/Kg 1.0U mg/Kg 694J+ mg/Kg 685J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-AJ-03-0'**	Boron Molybdenum Silicon Sodium Thallium Tungsten	5.7 mg/Kg 0.71 mg/Kg 420 mg/Kg 363 mg/Kg 0.20 mg/Kg 0.56 mg/Kg	20.4U mg/Kg 1.0U mg/Kg 420J+ mg/Kg 363J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AJ-03-10'**	Boron	9.9 mg/Kg	20.7U mg/Kg
	Molybdenum	0.60 mg/Kg	1.0U mg/Kg
	Silicon	410 mg/Kg	410J+ mg/Kg
	Sodium	642 mg/Kg	642J+ mg/Kg
	Thallium	0.16 mg/Kg	0.41U mg/Kg
	Tin	0.40 mg/Kg	0.41U mg/Kg
	Tungsten	0.41 mg/Kg	1.0U mg/Kg
TSB-BJ-06-0'**	Boron	5.9 mg/Kg	21.1U mg/Kg
	Molybdenum	0.63 mg/Kg	1.1U mg/Kg
	Silicon	652 mg/Kg	652J+ mg/Kg
	Sodium	275 mg/Kg	275J+ mg/Kg
	Thallium	0.16 mg/Kg	0.42U mg/Kg
	Tungsten	0.38 mg/Kg	1.1U mg/Kg
TSB-BJ-06-10'**	Boron	9.8 mg/Kg	23.6U mg/Kg
	Molybdenum	0.65 mg/Kg	1.2U mg/Kg
	Silicon	745 mg/Kg	745J+ mg/Kg
	Tin	0.36 mg/Kg	0.47U mg/Kg
	Tungsten	0.43 mg/Kg	1.2U mg/Kg
TSB-BJ-01-0'**	Boron	5.5 mg/Kg	20.3U mg/Kg
	Molybdenum	0.75 mg/Kg	1.0U mg/Kg
	Silicon	814 mg/Kg	814J+ mg/Kg
	Sodium	273 mg/Kg	273J+ mg/Kg
	Thallium	0.20 mg/Kg	0.41U mg/Kg
	Tungsten	0.36 mg/Kg	1.0U mg/Kg
TSB-BJ-01-10'	Boron	10.7 mg/Kg	21.2U mg/Kg
	Molybdenum	0.77 mg/Kg	1.1U mg/Kg
	Silicon	518 mg/Kg	518J+ mg/Kg
	Thallium	0.16 mg/Kg	0.42U mg/Kg
	Tungsten	0.61 mg/Kg	1.1U mg/Kg
TSB-BJ-02-0'**	Boron	6.6 mg/Kg	20.4U mg/Kg
	Molybdenum	0.71 mg/Kg	1.0U mg/Kg
	Silicon	714 mg/Kg	714J+ mg/Kg
	Sodium	369 mg/Kg	369J+ mg/Kg
	Thallium	0.18 mg/Kg	0.41U mg/Kg
	Tungsten	0.46 mg/Kg	1.0U mg/Kg
TSB-BJ-02-10'**	Boron	11.3 mg/Kg	21.5U mg/Kg
	Molybdenum	0.81 mg/Kg	1.1U mg/Kg
	Silicon	592 mg/Kg	592J+ mg/Kg
	Thallium	0.16 mg/Kg	0.43U mg/Kg
	Tungsten	0.42 mg/Kg	1.1U mg/Kg
TSB-BR-06-0'**	Boron	6.0 mg/Kg	20.3U mg/Kg
	Molybdenum	0.72 mg/Kg	1.0U mg/Kg
	Silicon	552 mg/Kg	552J+ mg/Kg
	Thallium	0.16 mg/Kg	0.41U mg/Kg
	Tungsten	0.45 mg/Kg	1.0U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-BR-06-10'**	Boron	10.3 mg/Kg	25.0U mg/Kg
	Molybdenum	1.2 mg/Kg	1.3U mg/Kg
	Silicon	746 mg/Kg	746J+ mg/Kg
	Thallium	0.20 mg/Kg	0.50U mg/Kg
	Tin	0.40 mg/Kg	0.50U mg/Kg
	Tungsten	0.51 mg/Kg	1.3U mg/Kg

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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 within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
TSB-AR-06-0'MS/MSD (All soil samples in SDG F7I100142)	Antimony	54.7 (75-125)	51.3 (75-125)	-	J- (all detects) UJ (all non-detects)	A
	Magnesium	71.6 (75-125)	-	-		
	Zinc	67.4 (75-125)	-	-		
	Phosphorus	-	71.9 (75-125)	-		
TSB-AR-06-0'MS/MSD (All soil samples in SDG F7I100142)	Niobium	175.9 (75-125)	162.8 (75-125)	-	J+ (all detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
TSB-AR-06-0'L	Phosphorus	11.3 (≤10)	All soil samples in SDG F7I100142	J (all detects)	A

XI. Sample Result Verification

All sample result verifications were 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.

XII. Overall Assessment of Data

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

XIII. 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 metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup				
Aluminum	8600	7860	9 (≤50)	-	-	-
Antimony	0.11	0.11U	-	0 (≤1)	-	-
Arsenic	3.0	2.8	-	0.2 (≤2.1)	-	-
Barium	169	176	4 (≤50)	-	-	-
Beryllium	0.50	0.45	-	0.05 (≤0.21)	-	-
Boron	15.9	16.3	-	0.4 (≤20.9)	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup				
Cadmium	0.13	0.11	-	0.02 (≤0.1)	-	-
Calcium	30700	23600	26 (≤50)	-	-	-
Chromium	11.8	10.4	-	1.4 (≤2.1)	-	-
Cobalt	6.0	5.3	12 (≤50)	-	-	-
Copper	12.7	11.9	7 (≤50)	-	-	-
Iron	14800	12900	14 (≤50)	-	-	-
Lead	8.9	8.6	3 (≤50)	-	-	-
Magnesium	9010	7990	12 (≤50)	-	-	-
Manganese	372	314	17 (≤50)	-	-	-
Molybdenum	0.83	0.73	-	0.1 (≤1)	-	-
Nickel	13.8	12.3	11 (≤50)	-	-	-
Niobium	1.6	1.6U	-	0 (≤5.2)	-	-
Palladium	0.39	0.34	-	0.05 (≤0.21)	-	-
Phosphorus	814	781	4 (≤50)	-	-	-
Potassium	4750	4800	1 (≤50)	-	-	-
Silicon	745	508	38 (≤50)	-	-	-
Silver	0.12	0.11	-	0.01 (≤0.42)	-	-
Sodium	1720	1450	17 (≤50)	-	-	-
Strontium	165	154	7 (≤50)	-	-	-
Thallium	0.24	0.36	-	0.12 (≤0.42)	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup				
Tin	0.49	0.4	-	0.09 (≤0.42)	-	-
Titanium	780	631	21 (≤50)	-	-	-
Tungsten	0.59	0.59	-	0 (≤1)	-	-
Uranium	0.90	0.88	-	0.02 (≤0.21)	-	-
Vanadium	36.4	31.0	16 (≤50)	-	-	-
Zinc	33.3	30.7	8 (≤50)	-	-	-
Zirconium	24.6	22.2	-	2.4 (≤20.9)	-	-
Lithium	14.3	11.9	-	2.4 (≤10.4)	-	-
Sulfur	1210	1110	-	100 (≤1110)	-	-

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup				
Mercury	6.9U	11.3	-	4.4 (≤34.8)	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**				
Aluminum	9020	8570	5 (≤50)	-	-	-
Antimony	0.11U	0.11	-	0 (≤1)	-	-
Arsenic	2.7	2.5	-	0.2 (≤2.0)	-	-
Barium	171	222	26 (≤50)	-	-	-
Beryllium	0.43	0.50	-	0.07 (≤0.2)	-	-
Boron	5.2	5.2	-	0 (≤20.3)	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**				
Cadmium	0.10	0.12	-	0.02 (≤0.1)	-	-
Calcium	24400	23500	4 (≤50)	-	-	-
Chromium	13.8	9.7	35 (≤50)	-	-	-
Cobalt	6.2	5.4	14 (≤50)	-	-	-
Copper	16.1	12.4	26 (≤50)	-	-	-
Iron	12200	12800	5 (≤50)	-	-	-
Lead	8.1	10.3	24 (≤50)	-	-	-
Magnesium	9380	7690	20 (≤50)		-	-
Manganese	310	332	7 (≤50)	-	-	-
Molybdenum	0.50	0.55	-	0.05 (≤1)	-	-
Nickel	23.7	12.1	65 (≤50)	-	J (all detects)	A
Palladium	0.39	0.40	-	0.01 (≤0.2)	-	-
Phosphorus	1320	732	57 (≤50)	-	J (all detects)	A
Potassium	2390	3170	28 (≤50)	-	-	-
Silicon	600	651	8 (≤50)	-	-	-
Silver	0.086	0.11	-	0.024 (≤0.41)	-	-
Sodium	1100	244	127 (≤50)	-	J (all detects)	A
Strontium	180	177	2 (≤50)	-	-	-
Thallium	0.19	0.18	-	0.01 (≤0.41)	-	-
Tin	0.31	0.38	-	0.07 (≤0.41)	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**				
Titanium	509	648	24 (≤50)	-	-	-
Tungsten	0.35	0.38	-	0.03 (≤1)	-	-
Uranium	0.84	0.89	-	0.05 (≤0.2)	-	-
Vanadium	26.5	30.7	15 (≤50)	-	-	-
Zinc	29.0	30.4	5 (≤50)	-	-	-
Zirconium	17.8	23.7	-	5.9 (≤20.3)	-	-
Lithium	15.5	13.9	-	1.6 (≤10.2)	-	-

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**				
Mercury	6.8U	7.3	-	0.5 (≤33.9)	-	-

BRC NE Sampling Event, July 2007
Metals - Data Qualification Summary - SDG F7I100142

SDG	Sample	Analyte	Flag	A or P	Reason
F7I100142	RINSATE 2 TSB-AJ-02-0'** TSB-BJ-06-10'** TSB-BR-06-10'**	Zirconium	J+ (all detects)	P	Calibration (ICV/CCV %R)
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'**	Antimony Magnesium Zinc Phosphorus	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
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'**	Niobium	J+ (all detects)	A	Matrix spike/Matrix spike duplicates (%R)

SDG	Sample	Analyte	Flag	A or P	Reason
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'**	Phosphorus	J (all detects)	A	ICP serial dilution (%D)
F7I100142	TSB-AJ-02-0'** TSB-AJ-02-0'-Dup**	Nickel Phosphorus Sodium	J (all detects) J (all detects) J (all detects)	A	Field duplicates (RPD)

BRC NE Sampling Event, July 2007
Metals - Laboratory Blank Data Qualification Summary - SDG F7I100142

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I100142	RINSATE 2	Tin Tungsten	2.0U ug/L 5.0U ug/L	A
F7I100142	TSB-AR-06-0' (2X)	Boron Thallium Tungsten	20.7U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AR-06-0'-Dup (2X)	Boron Thallium Tungsten	20.9U mg/Kg 0.42U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AR-06-10' (2X)	Boron Thallium Tungsten	20.7U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-01-0'** (2X)	Boron Thallium Tungsten	20.5U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-01-10'** (2X)	Boron Thallium Tungsten	20.8U mg/Kg 0.42U mg/Kg 1.0U mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I100142	TSB-AJ-02-0'** (2X)	Boron Thallium Tungsten	20.3U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-02-0'-Dup** (2X)	Boron Thallium Tungsten	20.3U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-02-10'** (2X)	Boron Thallium Tungsten	20.6U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-03-0'** (2X)	Boron Thallium Tungsten	20.4U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-03-10'** (2X)	Boron Thallium Tungsten	20.7U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-BJ-06-0'** (2X)	Boron Thallium Tungsten	21.1U mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A
F7I100142	TSB-BJ-06-10'** (2X)	Boron Tungsten	23.6U mg/Kg 1.2U mg/Kg	A
F7I100142	TSB-BJ-01-0'** (2X)	Boron Thallium Tungsten	20.3U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-BJ-01-10' (2X)	Boron Thallium Tungsten	21.2U mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A
F7I100142	TSB-BJ-02-0'** (2X)	Boron Thallium Tungsten Lithium	20.4U mg/Kg 0.41U mg/Kg 1.0U mg/Kg 25.5U mg/Kg	A
F7I100142	TSB-BJ-02-10'** (2X)	Boron Thallium Tungsten	21.5U mg/Kg 0.43U mg/Kg 1.1U mg/Kg	A
F7I100142	TSB-BR-06-0'** (2X)	Boron Thallium Tungsten	20.3U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I100142	TSB-BR-06-10'** (2X)	Boron Thallium Tungsten	25.0U mg/Kg 0.50U mg/Kg 1.3U mg/Kg	A

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

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I100142	TSB-AR-06-0'	Boron Molybdenum Silicon Thallium Tungsten	20.7U mg/Kg 1.0U mg/Kg 745J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AR-06-0'-Dup	Boron Molybdenum Silicon Thallium Tin Tungsten	20.9U mg/Kg 1.0U mg/Kg 508J+ mg/Kg 0.42U mg/Kg 0.42U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AR-06-10'	Boron Molybdenum Silicon Thallium Tin Tungsten	20.7U mg/Kg 1.0U mg/Kg 544J+ mg/Kg 0.41U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-01-0'**	Boron Molybdenum Silicon Sodium Thallium Tungsten	20.5U mg/Kg 1.0U mg/Kg 657J+ mg/Kg 373J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-01-10'**	Boron Molybdenum Silicon Thallium Tin Tungsten	20.8U mg/Kg 1.0U mg/Kg 737J+ mg/Kg 0.42U mg/Kg 0.42U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-02-0'**	Boron Molybdenum Silicon Thallium Tin Tungsten	20.3U mg/Kg 1.0U mg/Kg 600J+ mg/Kg 0.41U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I100142	TSB-AJ-02-0'-Dup**	Boron Molybdenum Silicon Sodium Thallium Tin Tungsten	20.3U mg/Kg 1.0U mg/Kg 651J+ mg/Kg 244J+ mg/Kg 0.41U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-02-10'**	Boron Molybdenum Silicon Sodium Thallium Tungsten	20.6U mg/Kg 1.0U mg/Kg 694J+ mg/Kg 685J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-03-0'**	Boron Molybdenum Silicon Sodium Thallium Tungsten	20.4U mg/Kg 1.0U mg/Kg 420J+ mg/Kg 363J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-AJ-03-10'**	Boron Molybdenum Silicon Sodium Thallium Tin Tungsten	20.7U mg/Kg 1.0U mg/Kg 410J+ mg/Kg 642J+ mg/Kg 0.41U mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-BJ-06-0'**	Boron Molybdenum Silicon Sodium Thallium Tungsten	21.1U mg/Kg 1.1U mg/Kg 652J+ mg/Kg 275J+ mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A
F7I100142	TSB-BJ-06-10'**	Boron Molybdenum Silicon Tin Tungsten	23.6U mg/Kg 1.2U mg/Kg 745J+ mg/Kg 0.47U mg/Kg 1.2U mg/Kg	A
F7I100142	TSB-BJ-01-0'**	Boron Molybdenum Silicon Sodium Thallium Tungsten	20.3U mg/Kg 1.0U mg/Kg 814J+ mg/Kg 273J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-BJ-01-10'	Boron Molybdenum Silicon Thallium Tungsten	21.2U mg/Kg 1.1U mg/Kg 518J+ mg/Kg 0.42U mg/Kg 1.1U mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I100142	TSB-BJ-02-0'**	Boron Molybdenum Silicon Sodium Thallium Tungsten	20.4U mg/Kg 1.0U mg/Kg 714J+ mg/Kg 369J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-BJ-02-10'**	Boron Molybdenum Silicon Thallium Tungsten	21.5U mg/Kg 1.1U mg/Kg 592J+ mg/Kg 0.43U mg/Kg 1.1U mg/Kg	A
F7I100142	TSB-BR-06-0'**	Boron Molybdenum Silicon Thallium Tungsten	20.3U mg/Kg 1.0U mg/Kg 552J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I100142	TSB-BR-06-10'**	Boron Molybdenum Silicon Thallium Tin Tungsten	25.0U mg/Kg 1.3U mg/Kg 746J+ mg/Kg 0.50U mg/Kg 0.50U mg/Kg 1.3U mg/Kg	A

LDC #: 17590C4
SDG #: F7I100142
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 10/14/07
Page: 1 of 1
Reviewer: W
2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6020/6010B/7000)

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.	Calibration	SW	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	SW	3 MS/MSD
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	A	Not reviewed for Level 3
IX.	Furnace Atomic Absorption QC	N	Not Utilized
X.	ICP Serial Dilution	SW	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(2,3), (7,8)
XIV.	Field Blanks	SW	R=1

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 A Soil except # 1 A2

1	RINSATE 2 A2	11	TSB-AJ-03-10'**	21	TSB-AR-06-0'MSD	31	
2	TSB-AR-06-0'	12	TSB-BJ-06-0'**	22	PB	32	
3	TSB-AR-06-0'-Dup	13	TSB-BJ-06-10'**	23		33	
4	TSB-AR-06-10'	14	TSB-BJ-01-0'**	24		34	
5	TSB-AJ-01-0'**	15	TSB-BJ-01-10'	25		35	
6	TSB-AJ-01-10'**	16	TSB-BJ-02-0'**	26		36	
7	TSB-AJ-02-0'**	17	TSB-BJ-02-10'**	27		37	
8	TSB-AJ-02-0'-Dup**	18	TSB-BR-06-0'**	28		38	
9	TSB-AJ-02-10'**	19	TSB-BR-06-10'**	29		39	
10	TSB-AJ-03-0'**	20	TSB-AR-06-0'MS	30		40	

Notes: _____

LDC #: 19504c4
SDG #: See cover

VALIDATION FINDINGS CHECKLIST

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

Method: Metals (EPA SW 846 Method 6010/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury and 85-115% for cyanide) QC limits?		✓		
Were all initial calibration correlation coefficients > 0.995? (Level IV only)	✓			
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
IV. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
IV. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were < 5X the RL.	✓			
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			
VI. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients > 0.995?			✓	
Do all applicable analysies have duplicate injections? (Level IV only)			✓	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	

LDC #: 19J0C4
SDG #: see cover

VALIDATION FINDINGS CHECKLIST

Reviewer: LM
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
XI. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the IDL?	✓			>100X MDL for TL/Pb/Ag
Were all percent differences (%Ds) < 10%?		✓		
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
XII. Internal Standards (EPA SW-846 Method 6020)				
Were all the percent recoveries (%R) within the 30-120% of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
XIII. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XIV. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XV. Overall Assessment of Data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 17590C4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

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

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-19	Aq/Soil	[✓ Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,]
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
MS 20, 21	Soil	[✓ Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,]
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
1-19	Aq/Soil	[✓ Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,]
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
MS 20, 21	Soil	[✓ Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,]
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,

Analysis Method

ICP		[✓ Li, S]
ICP-MS		[✓ Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si]
ICP-MS		[✓ Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Zr,]
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻,

Comments: [✓ Mercury by CVAA if performed]
Nb: Niobium, Pd: Palladium, P: Phosphorus, Pt: Platinum, S: Sulfur, W: Tungsten, U: Uranium, Zr: Zirconium

LDC #: 17590cf
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Calibration

Page: 1 of 1
Reviewer: MH
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?

Y (N) N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% for all analytes except mercury (80-120%) and cyanide (85-115%)?

LEVEL IV ONLY:

Y N (N/A) Was a midrange cyanide standard distilled?

(Y) N N/A Are all correlation coefficients ≥0.995?

(Y) N N/A Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recalculation Worksheet for recalculations.

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualification of Data
1	10/1/07 (1617)	ICV	Zn	112.6	All As + 7, 13, 19, PBS	J+ UJ+/P
2	10/1/07 (1654)	CCV	Zn	112.7	All As	
3	10/1/07 (1847)	CCV	Zn	112.9		
4	10/1/07 (2054)	CCV	Zn	113.6	PB	J+ UJ+/P
5	10/1/07 (2247)	CCV	Zn	111.4	PB, 7	
6	10/1/07 (2334)	CCV	Zn	112.3	7, 13	

Comments:

LDC #: 17590C4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: ug/L

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied:
Associated Samples: All AQ

Reviewer: W
2nd Reviewer:

					Sample Identification									
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	1									
Sb		0.20												
Cr		3.0												
Cu		0.27												
Fe		16.8												
Na		7.7												
Sn		0.58			0.85 / 2.0									
W			0.5		1.4 / 5.0									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 17590C4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/Kg

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: ICP:100X, ICP/MS:200X, Hg:166.7X
Associated Samples: All Soil

Reviewer:
2nd Reviewer:

					Sample Identification									
Analyte	**Maximum PB[a] (mg/Kg)**	**Maximum PB[a] (ug/L)**	**Maximum ICB/CCB[a] (ug/L)**	**Blank Action Limit**	2 (2X)	3 (2X)	4 (2X)	5 (2X)	6 (2X)	7 (2X)	8 (2X)	9 (2X)	10 (2X)	11 (2X)
Ba	0.068													
B	1.7				15.9 / 20.7	16.3 / 20.9	11.8 / 20.7	5.8 / 20.5	10.9 / 20.8	5.2 / 20.3	5.2 / 20.3	8.1 / 20.6	5.7 / 20.4	9.9 / 20.7
Cu	0.15													
Cr			0.6											
Ni	0.14													
P	2.3													
Na	4.7													
Tl			0.7		0.24 / 0.41	0.36 / 0.42	0.24 / 0.41	0.21 / 0.41	0.17 / 0.42	0.19 / 0.41	0.18 / 0.41	0.18 / 0.41	0.20 / 0.41	0.16 / 0.41
Ti			0.3											
W			0.6		0.59 / 1.0	0.59 / 1.0	0.54 / 1.0	0.44 / 1.0	0.41 / 1.0	0.35 / 1.0	0.38 / 1.0	0.41 / 1.0	0.56 / 1.0	0.41 / 1.0
Zn	1.8													
Li			15.8											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 17590C4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/Kg

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: ICP:100X, ICP/MS:200X, Hg:166.7X
Associated Samples: All Soil

Reviewer:
2nd Reviewer:

					Sample Identification									
Analyte	**Maximum PB[a] (mg/Kg)**	**Maximum PB[a] (ug/l)**	**Maximum ICB/CCB[a] (ug/l)**	**Blank Action Limit**	12 (2X)	13 (2X)	14 (2X)	15 (2X)	16 (2X)	17 (2X)	18 (2X)	19 (2X)		
Ba	0.068													
B	1.7				5.9 / 21.1	9.8 / 23.6	5.5 / 20.3	10.7 / 21.2	6.6 / 20.4	11.3 / 21.5	6.0 / 20.3	10.3 / 25.0		
Cu	0.15													
Cr			0.6											
Ni	0.14													
P	2.3													
Na	4.7													
Tl			0.7		0.16 / 0.42		0.20 / 0.41	0.16 / 0.42	0.18 / 0.41	0.16 / 0.43	0.16 / 0.41	0.20 / 0.50		
Ti			0.3											
W			0.6		0.38 / 1.1	0.43 / 1.2	0.36 / 1.0	0.61 / 1.1	0.46 / 1.0	0.42 / 1.1	0.45 / 1.0	0.51 / 1.3		
Zn	1.8													
Li			15.8						14.2 / 25.5					

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 17590C4
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer:
2nd Reviewer:

METHOD: Trace Metals (EPA SW846 6010B/6020/7000)

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

Blank units: ug/L **Associated sample units:** mg/Kg
Sampling date: 9 /7 /07 Soil factor applied 200X
Field blank type: (circle one) Field Blank / Rinsate / Other: R Associated Samples: All Soil

Analyte	Blank ID	Sample Identification											
	1	Action Level	2	3	4	5	6	7	8	9	10	11	12
B	364	728	15.9 / 20.7	16.3 / 20.9	11.8 / 20.7	5.8 / 20.5	10.9 / 20.8	5.2 / 20.3	5.2 / 20.3	8.1 / 20.6	5.7 / 20.4	9.9 / 20.7	5.9 / 21.1
Ca	99.6												
Cu	1.0	2											
Mg	6.2												
Mo	0.24		0.83 / 1.0	0.73 / 1.0	0.69 / 1.0	0.58 / 1.0	0.71 / 1.0	0.50 / 1.0	0.55 / 1.0	0.73 / 1.0	0.71 / 1.0	0.60 / 1.0	0.63 / 1.1
Nb	3.6												
P	44.4	88.8											
Si	678	1356	745J+	508J+	544J+	657J+	737J+	600J+	651J+	694J+	420J+	410J+	652J+
Na	343	686				373J+			244J+	685J+	363J+	642J+	275J+
Sr	0.40												
Tl	1.4		0.24 / 0.41	0.36 / 0.42	0.24 / 0.41	0.21 / 0.41	0.17 / 0.42	0.19 / 0.41	0.18 / 0.41	0.18 / 0.41	0.20 / 0.41	0.16 / 0.41	0.16 / 0.42
Sn	0.85			0.40 / 0.42	0.38 / 0.41		0.30 / 0.42	0.31 / 0.41	0.38 / 0.41			0.40 / 0.41	
W	1.4		0.59 / 1.0	0.59 / 1.0	0.54 / 1.0	0.44 / 1.0	0.41 / 1.0	0.35 / 1.0	0.38 / 1.0	0.41 / 1.0	0.56 / 1.0	0.41 / 1.0	0.38 / 1.1

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 17590C4
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer:
2nd Reviewer:

METHOD: Trace Metals (EPA SW846 6010B/6020/7000)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target analytes detected in the field blanks?
Blank units: ug/L **Associated sample units:** mg/Kg
Sampling date: 9 /7 /07 Soil factor applied 200X
Field blank type: (circle one) Field Blank / Rinsate / Other: R Associated Samples: All Soil

Analyte	Blank ID	Sample Identification											
	1	Action Level	13	14	15	16	17	18	19				
B	364	728	9.8 / 23.6	5.5 / 20.3	10.7 / 21.2	6.6 / 20.4	11.3 / 21.5	6.0 / 20.3	10.3 / 25.0				
Ca	99.6												
Cu	1.0	2											
Mg	6.2												
Mo	0.24		0.65 / 1.2	0.75 / 1.0	0.77 / 1.1	0.71 / 1.0	0.81 / 1.1	0.72 / 1.0	1.2 / 1.3				
Nb	3.6												
P	44.4	88.8											
Si	678	1356	745J+	814J+	518J+	714J+	592J+	552J+	746J+				
Na	343	686		273J+		369J+							
Sr	0.40												
Tl	1.4			0.20 / 0.41	0.16 / 0.42	0.18 / 0.41	0.16 / 0.43	0.16 / 0.41	0.20 / 0.50				
Sn	0.85		0.36 / 0.47						0.40 / 0.50				
W	1.4		0.43 / 1.2	0.36 / 1.0	0.61 / 1.1	0.46 / 1.0	0.42 / 1.1	0.45 / 1.0	0.51 / 1.3				

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 1959c4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: MM
2nd Reviewer:

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

(Y) N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	2021	Soil	Sb	54.7	51.3		All Soil	J-/UT/A
			Mg	71.6			↓	↓
			Nb	175.9	162.8			J+ UT/A
			Zn	67.4				J-/UT/A
			P		71.9		↓	↓

Comments:

LDC #: 19890cf
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

Page: 1 of 1
Reviewer: LW
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

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

(Y) N N/A If analyte concentrations were > 50X the MDL (ICP) ,or >100X the MDL (ICP/MS), was a serial dilution analyzed?
Y (N) N/A Were ICP serial dilution percent differences (%D) ≤10%?
Y (N) N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	Diluted Sample ID	Matrix	Analyte	%D (Limits)	Associated Samples	Qualifications
1		2	Soil	P	11.3	All Soil	J+ /A

Comments:

LDC#: 17590C4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: [illegible]
2nd Reviewer:

METHOD: Metals (EPA Method 6020/6010B/7000)

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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	2	3				
Aluminum	8600	7860	9			
Antimony	0.11	0.11U		0	(≤1)	
Arsenic	3.0	2.8		0.2	(≤2.1)	
Barium	169	176	4			
Beryllium	0.50	0.45		0.05	(≤0.21)	
Boron	15.9	16.3		0.4	(≤20.9)	
Cadmium	0.13	0.11		0.02	(≤0.1)	
Calcium	30700	23600	26			
Chromium	11.8	10.4		1.4	(≤2.1)	
Cobalt	6.0	5.3	12			
Copper	12.7	11.9	7			
Iron	14800	12900	14			
Lead	8.9	8.6	3			
Magnesium	9010	7990	12			
Manganese	372	314	17			
Molybdenum	0.83	0.73		0.1	(≤1)	
Nickel	13.8	12.3	11			
Niobium	1.6	1.6U		0	(≤5.2)	
Palladium	0.39	0.34		0.05	(≤0.21)	

LDC#: 17590C4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer:
2nd Reviewer:

METHOD: Metals (EPA Method 6020/6010B/7000)

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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	2	3				
Phosphorus	814	781	4			
Potassium	4750	4800	1			
Silicon	745	508	38			
Silver	0.12	0.11		0.01	(≤0.42)	
Sodium	1720	1450	17			
Strontium	165	154	7			
Thallium	0.24	0.36		0.12	(≤0.42)	
Tin	0.49	0.40		0.09	(≤0.42)	
Titanium	780	631	21			
Tungsten	0.59	0.59		0	(≤1)	
Uranium	0.90	0.88		0.02	(≤0.21)	
Vanadium	36.4	31.0	16			
Zinc	33.3	30.7	8			
Zirconium	24.6	22.2		2.4	(≤20.9)	
Lithium	14.3	11.9		2.4	(≤10.4)	
Sulfur	1210	1110		100	(≤1110)	
Mercury (ug/Kg)	6.9U	11.3		4.4	(≤34.8)	

LDC#: 17590C4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: ~
2nd Reviewer: _____

METHOD: Metals (EPA Method 6020/6010B/7000)

(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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	7	8				
Aluminum	9020	8570	5			
Antimony	0.11U	0.11		0	(≤1)	
Arsenic	2.7	2.5		0.2	(≤2.0)	
Barium	171	222	26			
Beryllium	0.43	0.50		0.07	(≤0.2)	
Boron	5.2	5.2		0	(≤20.3)	
Cadmium	0.10	0.12		0.02	(≤0.1)	
Calcium	24400	23500	4			
Chromium	13.8	9.7	35			
Cobalt	6.2	5.4	14			
Copper	16.1	12.4	26			
Iron	12200	12800	5			
Lead	8.1	10.3	24			
Magnesium	9380	7690	20			
Manganese	310	332	7			
Molybdenum	0.50	0.55		0.05	(≤1)	
Nickel	23.7	12.1	65			J det / A
Palladium	0.39	0.40		0.01	(≤0.2)	
Phosphorus	1320	732	57			J det / A

LDC#: 17590C4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: [signature]
2nd Reviewer:

METHOD: Metals (EPA Method 6020/6010B/7000)

(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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	7	8				
Potassium	2390	3170	28			
Silicon	600	651	8			
Silver	0.086	0.11		0.024	(≤0.41)	
Sodium	1100	244	127			J det / A
Strontium	180	177	2			
Thallium	0.19	0.18		0.01	(≤0.41)	
Tin	0.31	0.38		0.07	(≤0.41)	
Titanium	509	648	24			
Tungsten	0.35	0.38		0.03	(≤1)	
Uranium	0.84	0.89		0.05	(≤0.2)	
Vanadium	26.5	30.7	15			
Zinc	29.0	30.4	5			
Zirconium	17.8	23.7		5.9	(≤20.3)	
Lithium	15.5	13.9		1.6	(≤10.2)	
Mercury (ug/Kg)	6.8U	7.3		0.5	(≤33.9)	

LDC #: 1759c4
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: MS
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found x 100 / True

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	Li	4047.6	4000	101.2	101.2	Y
↓	~~GFAA~~ (Initial calibration) ICP/MS	Pb	195.65	200	97.8	97.8	
↓	CVAA (Initial calibration)	Hg	2.49	2.5	99.6	99.6	
CCV	ICP (Continuing calibration)	S	42590	40000	106.5	106.5	
↓	~~GFAA~~ (Continuing calibration) ICP/MS	~~Pb~~ Ag	48.588	~~200~~ 50	97.2	~~99.8~~ 97.2	
↓	CVAA (Continuing calibration)	Hg	5.03	5.03	100.6	100.6	↓
	Cyanide (Initial calibration)						
	Cyanide (Continuing calibation)						

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

LDC #: 17590 cf
SDG #: cu com

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MM
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recaluculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$

Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
TGAB	ICP interferance check	Co	48.79	50	97.6	97.6	Y
LCS	Laboratory control sample	Sb	59.4	60.9	97.6	97.6		
MS	Matrix spike	Cu	(SSR-SR) 10,748	12,933	83.1	83.1		
MD	Duplicate	K	9139.8	6988.5	2.1	2.1		
S	ICP serial dilution	Sr	434.14	398.5	8.9	8.9		

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

LDC #: 19590C4
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: MH
2nd reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Have results been reported and calculated correctly?
(Y) N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
(Y) N N/A Are all detection limits below the CRDL?

Detected analyte results for 5, 12 were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)(\%S)}$

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor
%S = Decimal percent solids

Recalculation:

#5 Li = $\frac{0.06385\ mg/L \times 0.05L \times 2 \times 1000\ g/kg}{0.5g \times 0.9956} = 13.09\ mg/kg$

Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)
12	Hg (mg/kg)	7.7	7.7	Y
5	Li	13.1	13.1	Y
12	↓	13.9	13.9	↓
5	Al	8140	8140	Y
	Sb	0.13	0.13	
	As	2.4	2.4	
	Ba	183	183	
	Be	0.49	0.49	
	B	5.8	5.8	
	Cd	0.12	0.12	
	Ca	37000	37000	
	Cr	9.9	9.9	
	Co	5.3	5.3	
	Cu	12.3	12.3	
	Fe	12400	12400	
	Pb	10.0	10.0	
	Mg	7650	7650	
	Mn	291	291	
	Mo	0.58	0.58	
	Ni	12.6	12.6	

LDC #: 17590c4
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: MH
2nd reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Have results been reported and calculated correctly?
(Y) N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
(Y) N N/A Are all detection limits below the CRDL?

Detected analyte results for 5 | 12 were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)(\%S)}$

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor
%S = Decimal percent solids

Recalculation:

#5 Ag = $\frac{0.2865\ mg/L \times 0.1\ L \times 2}{0.5\ g \times 0.9956} = 0.1175\ mg/kg$

Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)
5	Pb	0.43	0.43	Y
	P	785	785	
	K	3590	3580	
	Si	657	657	
	Ag	0.12	0.12	
	Na	393	393	
	Sr	175	175	
	Tl	0.21	0.21	
	Sn	0.51	0.51	
	Ti	662	662	
	W	0.44	0.44	
	U	1.2	1.2	
	V	29.4	29.4	
	Zn	32.5	32.5	↓
	Zr	22.1	22.1	↓
12	Al	8290	8270	Y
	Sb	0.13	0.13	
	As	2.5	2.4	
	Ba	170	170	
	Be	0.48	0.48	
	B	5.9	5.9	
	Cd	0.14	0.14	↓

LDC #: 19590c4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: MH
2nd reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for 5, 12 were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)(\%S)}$

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor
%S = Decimal percent solids

#12

Recalculation:

V 12 $\frac{88.9\text{-}1278\ ug/L \times 0.1L \times 2}{0.5g \times .9443} = 37.539\ mg/kg$

Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)
12	Ca	19100	19100	Y
	Cr	11.5	11.5	
	Co	6.0	6.0	
	Cu	14.0	14.0	
	Fe	13900	13900	
	Pb	11.6	11.6	
	Mg	7620	7620	
	Mn	376	375	
	Mo	0.63	0.63	
	Ni	13.8	13.8	
	Pd	0.35	0.35	
	P	914	913	
	K	3180	3180	
	Si	652	652	
	Ag	0.11	0.11	
	Na	375	375	
	Sr	144	144	
	Tl	0.16	0.16	
	Sn	0.56	0.56	
	Ti	760	760	
	W	0.38	0.38	
	U	0.90	0.90	
	V	37.5	37.5	
	Zn	43.6	43.6	
	Zr	21.3	21.3	

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 15, 2007

Matrix: Soil/Water

Parameters: Metals

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I110258

Sample Identification

TSB-BR-05-0'
TSB-BR-05-10'
TSB-BR-04-0'
TSB-BR-04-0'(FD)
TSB-BR-04-10'
TSB-BJ-03-0'
TSB-BJ-03-0'(FD)
TSB-BJ-03-10'
TSB-BJ-05-0'
TSB-BJ-05-10'
TSB-BR-01-0'
TSB-BR-01-10'
TSB-BJ-04-0'
TSB-BJ-04-10'
TSB-BR-02-0'
TSB-BR-02-10'
TSB-BR-03-0'
TSB-BR-03-10'
RINSATE 3
TSB-BR-05-0'MS
TSB-BR-05-0'DUP
RINSATE 3MS
RINSATE 3MSD

Introduction

This data review covers 20 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7000 for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Mercury, Nickel, Niobium, Palladium, Phosphorus, Platinum, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Sulfur, Thallium, Tin, Titanium, Tungsten, Uranium, Vanadium, and Zinc, and Zirconium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods 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.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

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. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
10/1/07	ICV (16:17)	Zirconium	112.6 (90-110)	TSB-BR-05-0' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BR-02-10' TSB-BR-03-0' RINSATE 3 PBS	J+ (all detects)	P
10/1/07	CCV (16:54)	Zirconium	112.7 (90-110)	TSB-BR-05-0' PBW	J+ (all detects)	P
10/1/07	CCV (18:14)	Zirconium	112.9 (90-110)	All water samples in SDG F7I110258	J+ (all detects)	P
10/1/07	CCV (19:34)	Zirconium	112.4 (90-110)	RINSATE 3MS RINSATE 3MSD	J+ (all detects)	P

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium Tin Tungsten	6.9 ug/L 0.74 ug/L 0.56 ug/L	All water samples in SDG F7I110258
ICB/CCB	Thallium Tungsten	0.7 ug/L 0.6 ug/L	All water samples in SDG F7I110258

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Aluminum Barium Boron Calcium Chromium Iron Phosphorus Potassium Sodium Tin Titanium Zinc	2.9 mg/Kg 0.078 mg/Kg 1.5 mg/Kg 30.9 mg/Kg 0.27 mg/Kg 3.9 mg/Kg 2.7 mg/Kg 2.7 mg/Kg 5.2 mg/Kg 0.028 mg/Kg 0.062 mg/Kg 3.8 mg/Kg	All soil samples in SDG F7I110258
ICB/CCB	Chromium Thallium Titanium Lithium	1.0 ug/L 0.3 ug/L 0.3 ug/L 13.2 ug/L	All soil samples in SDG F7I110258

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RINSATE 3	Thallium Tin Tungsten	0.96 ug/L 0.93 ug/L 1.5 ug/L	2.0U ug/L 2.0U ug/L 5.0U ug/L
TSB-BR-05-0' (2X)	Boron Zinc	7.0 mg/Kg 30.8 mg/Kg	20.4U mg/Kg 30.8J+ mg/Kg
TSB-BR-05-10' (2X)	Boron Thallium Zinc	11.2 mg/Kg 0.26 mg/Kg 30.5 mg/Kg	21.9U mg/Kg 0.44U mg/Kg 30.5J+ mg/Kg
TSB-BR-04-0' (2X)	Boron Zinc Lithium	10.2 mg/Kg 32.0 mg/Kg 9.4 mg/Kg	20.7U mg/Kg 32.0J+ mg/Kg 10.4U mg/Kg
TSB-BR-04-0'(FD) (2X)	Boron Zinc	10.7 mg/Kg 32.2 mg/Kg	20.6U mg/Kg 32.2J+ mg/Kg
TSB-BR-04-10' (2X)	Boron Zinc	9.2 mg/Kg 30.6 mg/Kg	21.5U mg/Kg 30.6J+ mg/Kg
TSB-BJ-03-0' (2X)	Boron Lithium	6.8 mg/Kg 9.5 mg/Kg	22.5U mg/Kg 11.3U mg/Kg
TSB-BJ-03-0'(FD) (2X)	Boron Lithium	6.6 mg/Kg 10.0 mg/Kg	21.5U mg/Kg 10.8U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-BJ-03-10' (2X)	Boron Zinc Lithium	7.9 mg/Kg 29.7 mg/Kg 12.3 mg/Kg	24.8U mg/Kg 29.7J+ mg/Kg 12.4U mg/Kg
TSB-BJ-05-0' (2X)	Boron Thallium Lithium	14.7 mg/Kg 0.24 mg/Kg 9.7 mg/Kg	20.7U mg/Kg 0.41U mg/Kg 10.4U mg/Kg
TSB-BJ-05-10' (2X)	Boron Zinc	10.3 mg/Kg 36.2 mg/Kg	21.0U mg/Kg 36.2J+ mg/Kg
TSB-BR-01-0' (2X)	Boron Zinc Lithium	5.9 mg/Kg 34.7 mg/Kg 9.9 mg/Kg	20.5U mg/Kg 34.7J+ mg/Kg 10.3U mg/Kg
TSB-BR-01-10' (2X)	Boron Zinc	6.7 mg/Kg 29.4 mg/Kg	21.5U mg/Kg 29.4J+ mg/Kg
TSB-BJ-04-0' (2X)	Boron	5.1 mg/Kg	20.6U mg/Kg
TSB-BJ-04-10' (2X)	Boron Zinc	5.9 mg/Kg 35.7 mg/Kg	21.5 mg/Kg 35.7J+ mg/Kg
TSB-BR-02-0' (2X)	Boron	9.4 mg/Kg	20.5U mg/Kg
TSB-BR-02-10' (2X)	Boron Zinc	6.8 mg/Kg 34.6 mg/Kg	21.2U mg/Kg 34.6J+ mg/Kg
TSB-BR-03-0' (2X)	Boron	7.9 mg/Kg	21.2U mg/Kg
TSB-BR-03-10' (2X)	Boron Zinc	8.7 mg/Kg 36.2 mg/Kg	21.0U mg/Kg 36.2J+ mg/Kg

Sample "RINSATE 3" was identified as a rinsate. No metal contaminants were found in this blank with the following exceptions:

Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
RINSATE 3	9/6/07	Aluminum Boron Cadmium Calcium Copper Iron Magnesium Manganese Molybdenum Niobium Silicon Sodium Strontium Thallium Tin Tungsten Zinc	11.5 ug/L 353 ug/L 0.056 ug/L 101 ug/L 1.6 ug/L 50.9 ug/L 10.1 ug/L 0.72 ug/L 0.29 ug/L 3.7 ug/L 715 ug/L 138 ug/L 0.63 ug/L 0.96 ug/L 0.93 ug/L 1.5 ug/L 4.4 ug/L	All soil samples in SDG F7I110258

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-BR-05-0'	Boron Molybdenum Niobium Silicon Tungsten	7.0 mg/Kg 0.55 mg/Kg 2.0 mg/Kg 221 mg/Kg 0.61 mg/Kg	20.4U mg/Kg 1.0U mg/Kg 5.1U mg/Kg 221J+ mg/Kg 1.0U mg/Kg
TSB-BR-05-10'	Boron Cadmium Molybdenum Silicon Thallium Tungsten	11.2 mg/Kg 0.090 mg/Kg 0.79 mg/Kg 177 mg/Kg 0.26 mg/Kg 0.86 mg/Kg	21.9U mg/Kg 0.11U mg/Kg 1.1U mg/Kg 177J+ mg/Kg 0.44U mg/Kg 1.1U mg/Kg
TSB-BR-04-0'	Boron Molybdenum Silicon Tungsten	10.2 mg/Kg 0.56 mg/Kg 262 mg/Kg 0.51 mg/Kg	20.7U mg/Kg 1.0U mg/Kg 262J+ mg/Kg 1.0U mg/Kg
TSB-BR-04-0'(FD)	Boron Molybdenum Silicon Tungsten	10.7 mg/Kg 0.60 mg/Kg 188 mg/Kg 0.42 mg/Kg	20.6U mg/Kg 1.0U mg/Kg 188J+ mg/Kg 1.0U mg/Kg
TSB-BR-04-10'	Boron Cadmium Silicon Tungsten	9.2 mg/Kg 0.098 mg/Kg 243 mg/Kg 0.68 mg/Kg	21.5U mg/Kg 0.11U mg/Kg 243J+ mg/Kg 1.1U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-BJ-03-0'	Boron Molybdenum Silicon Tungsten	6.8 mg/Kg 0.76 mg/Kg 347 mg/Kg 0.48 mg/Kg	22.5U mg/Kg 1.1U mg/Kg 347J+ mg/Kg 1.1U mg/Kg
TSB-BJ-03-0'(FD)	Boron Molybdenum Silicon Tungsten	6.6 mg/Kg 0.61 mg/Kg 286 mg/Kg 0.46 mg/Kg	21.5U mg/Kg 1.1U mg/Kg 286J+ mg/Kg 1.1U mg/Kg
TSB-BJ-03-10'	Boron Cadmium Molybdenum Silicon Tungsten	7.9 mg/Kg 0.087 mg/Kg 0.69 mg/Kg 171 mg/Kg 0.41 mg/Kg	24.8U mg/Kg 0.12U mg/Kg 1.2U mg/Kg 171J+ mg/Kg 1.2U mg/Kg
TSB-BJ-05-0'	Boron Silicon Thallium Tungsten	14.7 mg/Kg 166 mg/Kg 0.24 mg/Kg 0.71 mg/Kg	20.7U mg/Kg 166J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg
TSB-BJ-05-10'	Boron Molybdenum Silicon Tungsten	10.3 mg/Kg 0.83 mg/Kg 143 mg/Kg 0.58 mg/Kg	21.0U mg/Kg 1.1U mg/Kg 143J+ mg/Kg 1.1U mg/Kg
TSB-BR-01-0'	Boron Molybdenum Silicon Tungsten	5.9 mg/Kg 0.74 mg/Kg 292 mg/Kg 0.65 mg/Kg	20.5U mg/Kg 1.0U mg/Kg 292J+ mg/Kg 1.0U mg/Kg
TSB-BR-01-10'	Boron Cadmium Molybdenum Silicon Tungsten	6.7 mg/Kg 0.084 mg/Kg 0.97 mg/Kg 230 mg/Kg 0.42 mg/Kg	21.5U mg/Kg 0.11U mg/Kg 1.1U mg/Kg 230J+ mg/Kg 1.1U mg/Kg
TSB-BJ-04-0'	Boron Molybdenum Silicon Tungsten	5.1 mg/Kg 0.82 mg/Kg 128 mg/Kg 0.44 mg/Kg	20.6U mg/Kg 1.0U mg/Kg 128J+ mg/Kg 1.0U mg/Kg
TSB-BJ-04-10'	Boron Silicon Tungsten	5.9 mg/Kg 161 mg/Kg 0.40 mg/Kg	21.5U mg/Kg 161J+ mg/Kg 1.1U mg/Kg
TSB-BR-02-0'	Boron Molybdenum Silicon Tungsten	9.4 mg/Kg 0.94 mg/Kg 131 mg/Kg 0.46 mg/Kg	20.5U mg/Kg 1.0U mg/Kg 131J+ mg/Kg 1.0U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-BR-02-10'	Boron Molybdenum Silicon Tungsten	6.8 mg/Kg 0.62 mg/Kg 160 mg/Kg 0.48 mg/Kg	21.2U mg/Kg 1.1U mg/Kg 160J+ mg/Kg 1.1U mg/Kg
TSB-BR-03-0'	Boron Molybdenum Silicon Tungsten	7.9 mg/Kg 0.96 mg/Kg 231 mg/Kg 0.39 mg/Kg	21.2U mg/Kg 1.1U mg/Kg 231J+ mg/Kg 1.1U mg/Kg
TSB-BR-03-10'	Boron Molybdenum Silicon Tungsten	8.7 mg/Kg 0.68 mg/Kg 263 mg/Kg 0.36 mg/Kg	21.0U mg/Kg 1.1U mg/Kg 263J+ mg/Kg 1.1U mg/Kg

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

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 within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
TSB-BR-05-0'MS (All soil samples in SDG F7I110258)	Antimony	57.6 (75-125)	-	-	J- (all detects) UJ (all non-detects)	A
TSB-BR-05-0'MS (All soil samples in SDG F7I110258)	Barium Niobium Potassium Silicon Strontium	128.0 (75-125) 178.2 (75-125) 133.1 (75-125) 191.2 (75-125) 126.8 (75-125)	- - - - -	- - - - -	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
TSB-BR-05-0'DUP (All samples in SDG F7I110258)	Nickel	22.7 (≤20)	-	J (all detects) UJ (all non-detects)	A

VII. Laboratory Control Samples (LCS)

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

VIII. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
TSB-BR-05-0'L	Cobalt Phosphorus Strontium	11.5 (≤10) 13.5 (≤10) 11.5 (≤10)	All soil samples in SDG F7I110258	J (all detects) J (all detects) J (all detects)	A

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

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

XIII. 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 metals were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)				
Aluminum	7510	7740	3 (≤50)	-	-	-
Antimony	0.15	0.17	-	0.02 (≤1)	-	-
Arsenic	2.5	2.6	-	0.1 (≤2.1)	-	-
Barium	208	202	3 (≤50)	-	-	-
Beryllium	0.47	0.49	-	0.02 (≤0.21)	-	-
Boron	10.2	10.7	-	0.5 (≤20.7)	-	-
Cadmium	0.17	0.13	-	0.04(≤0.1)	-	-
Calcium	50700	23000	75 (≤50)	-	J (all detects)	A
Chromium	7.4	8.7	-	1.3 (≤2.1)	-	-
Cobalt	6.0	6.1	2 (≤50)	-	-	-
Copper	13.0	12.7	2 (≤50)	-	-	-
Iron	11000	11800	7 (≤50)	-	-	-
Lead	14.7	13.0	12 (≤50)	-	-	-
Magnesium	7870	7840	0 (≤50)	-	-	-
Manganese	428	388	10 (≤50)	-	-	-
Molybdenum	0.56	0.60	-	0.04 (≤1)	-	-
Nickel	13.1	12.9	2 (≤50)	-	-	-
Palladium	0.38	0.35	-	0.03 (≤0.21)	-	-
Phosphorus	1120	1080	4 (≤50)	-	-	-
Potassium	2950	2980	1 (≤50)	-	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)				
Silicon	262	188	33 (≤50)	-	-	-
Silver	0.10	0.094	-	0.006 (≤0.42)	-	-
Sodium	504	548	8 (≤50)	-	-	-
Strontium	165	152	8 (≤50)	-	-	-
Tin	0.52	0.56	-	0.04 (≤0.42)	-	-
Titanium	547	530	3 (≤50)	-	-	-
Tungsten	0.51	0.42	-	0.09 (≤1)	-	-
Uranium	0.91	0.94	-	0.03 (≤0.21)	-	-
Vanadium	24.2	26.9	11 (≤50)	-	-	-
Zinc	32.0	32.2	1 (≤50)	-	-	-
Zirconium	21.6	20.6	-	1 (≤20.7)	-	-
Lithium	9.4	12.2	-	2.8 (≤10.4)	-	-

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)				
Mercury	12.3	13.2	-	0.9 (≤34.6)	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
Aluminum	7910	8400	6 (≤50)	-	-	-
Antimony	0.18	0.17	-	0.01 (≤1.1)	-	-
Arsenic	2.5	2.5	-	0 (≤2.3)	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
Barium	198	184	7 (≤50)	-	-	-
Beryllium	0.51	0.52	-	0.01 (≤0.22)	-	-
Boron	6.8	6.6	-	0.2 (≤22.5)	-	-
Cadmium	0.18	0.16	-	0.02 (≤0.11)	-	-
Calcium	33900	21300	46 (≤50)	-	-	-
Chromium	9.5	9.4	-	0.1 (≤2.2)	-	-
Cobalt	6.3	7.1	12 (≤50)	-	-	-
Copper	19.7	18.1	8 (≤50)	-	-	-
Iron	12400	12700	2 (≤50)	-	-	-
Lead	28.6	17.5	48 (≤50)	-	-	-
Magnesium	10600	10200	4 (≤50)	-	-	-
Manganese	441	571	26 (≤50)	-	-	-
Molybdenum	0.76	0.61	-	0.15 (≤1.1)	-	-
Nickel	13.5	15.2	12 (≤50)	-	-	-
Palladium	0.33	0.30	-	0.03 (≤0.23)	-	-
Phosphorus	1280	1500	16 (≤50)	-	-	-
Potassium	2730	2670	2 (≤50)	-	-	-
Silicon	347	286	19 (≤50)	-	-	-
Silver	0.12	0.11	-	0.01 (≤0.45)	-	-
Sodium	627	608	3 (≤50)	-	-	-

Compound	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
Strontium	143	120	17 (≤50)	-	-	-
Tin	0.61	0.57	-	0.04 (≤0.45)	-	-
Titanium	640	567	12 (≤50)	-	-	-
Tungsten	0.48	0.46	-	0.02 (≤1.1)	-	-
Uranium	0.78	0.81	-	0.03 (≤0.23)	-	-
Vanadium	30.1	29.3	3 (≤50)	-	-	-
Zinc	41.8	40.4	3 (≤50)	-	-	-
Zirconium	22.0	18.7	-	3.3 (≤22.5)	-	-
Lithium	9.5	10.0	-	0.5 (≤11.3)	-	-

Compound	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
Mercury	9.0	9.9	-	0.9 (≤37.6)	-	-

BRC NE Sampling Event, July 2007
Metals - Data Qualification Summary - SDG F7I110258

SDG	Sample	Analyte	Flag	A or P	Reason
F7I110258	TSB-BR-05-0' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BR-02-10' TSB-BR-03-0' RINSATE 3	Zirconium	J+ (all detects)	P	Calibration (ICV/CCV %R)
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10'	Antimony	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10'	Barium Niobium Potassium Silicon Strontium	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	A	Matrix spike/Matrix spike duplicates (%R)

SDG	Sample	Analyte	Flag	A or P	Reason
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10'	Nickel	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (RPD)
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10'	Cobalt Phosphorus Strontium	J (all detects) J (all detects) J (all detects)	A	ICP serial dilution (%D)
F7I110258	TSB-BR-04-0' TSB-BR-04-0'(FD)	Calcium	J (all detects)	A	Field duplicates (RPD)

BRC NE Sampling Event, July 2007
Metals - Laboratory Blank Data Qualification Summary - SDG F7I110258

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I110258	RINSATE 3	Thallium Tin Tungsten	2.0U ug/L 2.0U ug/L 5.0U ug/L	A
F7I110258	TSB-BR-05-0' (2X)	Boron Zinc	20.4U mg/Kg 30.8J+ mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I110258	TSB-BR-05-10' (2X)	Boron Thallium Zinc	21.9U mg/Kg 0.44U mg/Kg 30.5J+ mg/Kg	A
F7I110258	TSB-BR-04-0' (2X)	Boron Zinc Lithium	20.7U mg/Kg 32.0J+ mg/Kg 10.4U mg/Kg	A
F7I110258	TSB-BR-04-0'(FD) (2X)	Boron Zinc	20.6U mg/Kg 32.2J+ mg/Kg	A
F7I110258	TSB-BR-04-10' (2X)	Boron Zinc	21.5U mg/Kg 30.6J+ mg/Kg	A
F7I110258	TSB-BJ-03-0' (2X)	Boron Lithium	22.5U mg/Kg 11.3U mg/Kg	A
F7I110258	TSB-BJ-03-0'(FD) (2X)	Boron Lithium	21.5U mg/Kg 10.8U mg/Kg	A
F7I110258	TSB-BJ-03-10' (2X)	Boron Zinc Lithium	24.8U mg/Kg 29.7J+ mg/Kg 12.4U mg/Kg	A
F7I110258	TSB-BJ-05-0' (2X)	Boron Thallium Lithium	20.7U mg/Kg 0.41U mg/Kg 10.4U mg/Kg	A
F7I110258	TSB-BJ-05-10' (2X)	Boron Zinc	21.0U mg/Kg 36.2J+ mg/Kg	A
F7I110258	TSB-BR-01-0' (2X)	Boron Zinc Lithium	20.5U mg/Kg 34.7J+ mg/Kg 10.3U mg/Kg	A
F7I110258	TSB-BR-01-10' (2X)	Boron Zinc	21.5U mg/Kg 29.4J+ mg/Kg	A
F7I110258	TSB-BJ-04-0' (2X)	Boron	20.6U mg/Kg	A
F7I110258	TSB-BJ-04-10' (2X)	Boron Zinc	21.5 mg/Kg 35.7J+ mg/Kg	A
F7I110258	TSB-BR-02-0' (2X)	Boron	20.5U mg/Kg	A
F7I110258	TSB-BR-02-10' (2X)	Boron Zinc	21.2U mg/Kg 34.6J+ mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I110258	TSB-BR-03-0' (2X)	Boron	21.2U mg/Kg	A
F7I110258	TSB-BR-03-10' (2X)	Boron Zinc	21.0U mg/Kg 36.2J+ mg/Kg	A

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

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I110258	TSB-BR-05-0'	Boron Molybdenum Niobium Silicon Tungsten	20.4U mg/Kg 1.0U mg/Kg 5.1U mg/Kg 221J+ mg/Kg 1.0U mg/Kg	A
F7I110258	TSB-BR-05-10'	Boron Cadmium Molybdenum Silicon Thallium Tungsten	21.9U mg/Kg 0.11U mg/Kg 1.1U mg/Kg 177J+ mg/Kg 0.44U mg/Kg 1.1U mg/Kg	A
F7I110258	TSB-BR-04-0'	Boron Molybdenum Silicon Tungsten	20.7U mg/Kg 1.0U mg/Kg 262J+ mg/Kg 1.0U mg/Kg	A
F7I110258	TSB-BR-04-0'(FD)	Boron Molybdenum Silicon Tungsten	20.6U mg/Kg 1.0U mg/Kg 188J+ mg/Kg 1.0U mg/Kg	A
F7I110258	TSB-BR-04-10'	Boron Cadmium Silicon Tungsten	21.5U mg/Kg 0.11U mg/Kg 243J+ mg/Kg 1.1U mg/Kg	A
F7I110258	TSB-BJ-03-0'	Boron Molybdenum Silicon Tungsten	22.5U mg/Kg 1.1U mg/Kg 347J+ mg/Kg 1.1U mg/Kg	A
F7I110258	TSB-BJ-03-0'(FD)	Boron Molybdenum Silicon Tungsten	21.5U mg/Kg 1.1U mg/Kg 286J+ mg/Kg 1.1U mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I110258	TSB-BJ-03-10'	Boron Cadmium Molybdenum Silicon Tungsten	24.8U mg/Kg 0.12U mg/Kg 1.2U mg/Kg 171J+ mg/Kg 1.2U mg/Kg	A
F7I110258	TSB-BJ-05-0'	Boron Silicon Thallium Tungsten	20.7U mg/Kg 166J+ mg/Kg 0.41U mg/Kg 1.0U mg/Kg	A
F7I110258	TSB-BJ-05-10'	Boron Molybdenum Silicon Tungsten	21.0U mg/Kg 1.1U mg/Kg 143J+ mg/Kg 1.1U mg/Kg	A
F7I110258	TSB-BR-01-0'	Boron Molybdenum Silicon Tungsten	20.5U mg/Kg 1.0U mg/Kg 292J+ mg/Kg 1.0U mg/Kg	A
F7I110258	TSB-BR-01-10'	Boron Cadmium Molybdenum Silicon Tungsten	21.5U mg/Kg 0.11U mg/Kg 1.1U mg/Kg 230J+ mg/Kg 1.1U mg/Kg	A
F7I110258	TSB-BJ-04-0'	Boron Molybdenum Silicon Tungsten	20.6U mg/Kg 1.0U mg/Kg 128J+ mg/Kg 1.0U mg/Kg	A
F7I110258	TSB-BJ-04-10'	Boron Silicon Tungsten	21.5U mg/Kg 161J+ mg/Kg 1.1U mg/Kg	A
F7I110258	TSB-BR-02-0'	Boron Molybdenum Silicon Tungsten	20.5U mg/Kg 1.0U mg/Kg 131J+ mg/Kg 1.0U mg/Kg	A
F7I110258	TSB-BR-02-10'	Boron Molybdenum Silicon Tungsten	21.2U mg/Kg 1.1U mg/Kg 160J+ mg/Kg 1.1U mg/Kg	A
F7I110258	TSB-BR-03-0'	Boron Molybdenum Silicon Tungsten	21.2U mg/Kg 1.1U mg/Kg 231J+ mg/Kg 1.1U mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I110258	TSB-BR-03-10'	Boron Molybdenum Silicon Tungsten	21.0U mg/Kg 1.1U mg/Kg 263J+ mg/Kg 1.1U mg/Kg	A

LDC #: 17590D4
SDG #: F7I110258
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date:
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: Metals (EPA SW 846 Method 6020/6010B/7000)

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.	Calibration	SW	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	SW	3MS/MSD/Dup
VI.	Duplicate Sample Analysis	SW	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	Not reviewed
IX.	Furnace Atomic Absorption QC	N	Not applicable
X.	ICP Serial Dilution	SW	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(3,4) (6,7)
XIV.	Field Blanks	SW	R=19

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 soil except #19, 23, 24 A2

1	TSB-BR-05-0'	11	TSB-BR-01-0'	21	~~TSB-BR-05-0'MSD~~	31	
2	TSB-BR-05-10'	12	TSB-BR-01-10'	22	TSB-BR-05-0'DUP	32	
3	TSB-BR-04-0'	13	TSB-BJ-04-0'	23	RINSATE 3MS A2	33	
4	TSB-BR-04-0'(FD)	14	TSB-BJ-04-10'	24	RINSATE 3MSD	34	
5	TSB-BR-04-10'	15	TSB-BR-02-0'	25		35	
6	TSB-BJ-03-0'	16	TSB-BR-02-10'	26		36	
7	TSB-BJ-03-0'(FD)	17	TSB-BR-03-0'	27		37	
8	TSB-BJ-03-10'	18	TSB-BR-03-10'	28		38	
9	TSB-BJ-05-0'	19	RINSATE 3 A2	29		39	
10	TSB-BJ-05-10'	20	TSB-BR-05-0'MS	30		40	

Notes:

LDC #: 17590B4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

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

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-19	soil/Aq	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
20,22	soil	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
23,24	Aq	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
1-19	soil/Aq	Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
20,22	soil	Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
23,24	Aq	Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,

		Analysis Method
ICP		Li, S
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si,
ICP-MS		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Zr,
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻,

Comments: Mercury by CVAA if performed
Nb: Niobium, Pd: Palladium, P: Phosphorus, Pt: Platinum, S: Sulfur, W: Tungsten, U: Uranium, Zr: Zirconium

LDC #: 19509J4
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Calibration

Page: 1 of 1
Reviewer: MH
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?

Y (N) N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% for all analytes except mercury (80-120%) and cyanide (85-115%)?

LEVEL IV ONLY:

Y N (N/A) Was a midrange cyanide standard distilled?

Y N (N/A) Are all correlation coefficients ≥0.995?

Y N (N/A) Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recalculation Worksheet for recalculations.

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualification of Data
1	10/1/07 (1617)	ICV	Zr	112.6	All A2 + 1, 6-8, 16, 17, PBS	J+ UJ+ /p
2	10/1/07 (1654)	CCV	Zr	112.7	1, PBW	
3	10/1/07 (1814)	CCV	Zr	112.9	All A2	
4	10/1/07 (1934)	CCV	Zr	112.4	23, 24	

Comments:

CAL4SW

LDC #: 17590D4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: ug/L

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: _____
Associated Samples: All AQ

Reviewer: MS
2nd Reviewer: _____

					Sample Identification									
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	19									
Tl			0.7		0.96 / 2.0									
Na		6.9												
Sn		0.74			0.93 / 2.0									
W		0.56	0.6		1.5 / 5.0									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 17590D4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/Kg

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: ICP:100X, ICP/MS:200X, Hg:166.7X
Associated Samples: All Soil

					Sample Identification									
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Blank Action Limit	1 (2X)	2 (2X)	3 (2X)	4 (2X)	5 (2X)	6 (2X)	7 (2X)	8 (2X)	9 (2X)	10 (2X)
Al	2.9													
Ba	0.078													
B	1.5				7.0 / 20.4	11.2 / 21.9	10.2 /20.7	10.7 / 20.6	9.2 / 21.5	6.8 / 22.5	6.6 / 21.5	7.9 / 24.8	14.7 / 20.7	10.3 / 21.0
Ca	30.9													
Cr	0.27		1.0											
Fe	3.9													
P	2.7													
K	2.7													
Na	5.2													
Tl			0.3			0.26 / 0.44							0.24 / 0.41	
Sn	0.028													
Ti	0.062		0.3											
Zn	3.8			38	30.8J+	30.5J+	32.0J+	32.2J+	30.6J+			29.7J+		36.2J+
Li			13.2				9.4 / 10.4			9.5 / 11.3	10.0 / 10.8	12.3 / 12.4	9.7 / 10.4	

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 17590D4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/Kg

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: ICP:100X, ICP/MS:200X, Hg:166.7X
Associated Samples: All Soil

					Sample Identification									
Analyte	**Maximum PB[a] (mg/Kg)**	**Maximum PB[a] (ug/L)**	**Maximum ICB/CCB[a] (ug/L)**	**Blank Action Limit**	11 (2X)	12 (2X)	13 (2X)	14 (2X)	15 (2X)	16 (2X)	17 (2X)	18 (2X)		
Al	2.9													
Ba	0.078													
B	1.5				5.9 / 20.5	6.7 / 21.5	5.1 / 20.6	5.9 / 21.5	9.4 / 20.5	6.8 / 21.2	7.9 / 21.2	8.7 / 21.0		
Ca	30.9													
Cr	0.27		1.0											
Fe	3.9													
P	2.7													
K	2.7													
Na	5.2													
Tl			0.3											
Sn	0.028													
Ti	0.062		0.3											
Zn	3.8			38	34.7J+	29.4J+		35.7J+		34.6J+		36.2J+		
Li			13.2		9.9 / 10.3									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 17590D4
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

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

METHOD: Trace Metals (EPA SW846 6010B/6020/7000)

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

Blank units: ug/L **Associated sample units:** mg/Kg
Sampling date: 9 /6 /07 Soil factor applied 200X
Field blank type: (circle one) Field Blank / Rinsate / Other: R Associated Samples: All Soil

Analyte	Blank ID	Sample Identification											
	19	Action Level	1	2	3	4	5	6	7	8	9	10	11
Al	11.5												
B	353	706	7.0 / 20.4	11.2 / 21.9	10.2 /20.7	10.7 / 20.6	9.2 / 21.5	6.8 / 22.5	6.6 / 21.5	7.9 / 24.8	14.7 / 20.7	10.3 / 21.0	5.9 / 20.5
Cd	0.056			0.090 / 0.11			0.098 / 0.11			0.087 / 0.12			
Ca	101	202											
Cu	1.6	3.2											
Fe	50.9	101.8											
Mg	10.1												
Mn	0.72												
Mo	0.29		0.55 / 1.0	0.79 / 1.1	0.56 / 1.0	0.60 / 1.0		0.76 / 1.1	0.61 / 1.1	0.69 / 1.2		0.83 / 1.1	0.74 / 1.0
Nb	3.7		2.0 / 5.1										
Si	715	1430	221J+	177J+	262J+	188J+	243J+	347J+	286J+	171J+	166J+	143J+	292J+
Na	138	276											
Sr	0.63												
Tl	0.96			0.26 / 0.44							0.24 / 0.41		
Sn	0.93												
W	1.5		0.61 / 1.0	0.86 / 1.1	0.51 / 1.0	0.42 / 1.0	0.68 / 1.1	0.48 / 1.1	0.46 / 1.1	0.41 / 1.2	0.71 / 1.0	0.58 / 1.1	0.65 / 1.0
Zn	4.4												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 17590D4
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer:
2nd Reviewer:

METHOD: Trace Metals (EPA SW846 6010B/6020/7000)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target analytes detected in the field blanks?
Blank units: ug/L **Associated sample units:** mg/Kg
Sampling date: 9 /6 /07 Soil factor applied 200X
Field blank type: (circle one) Field Blank / Rinsate / Other: R Associated Samples: All Soil

Analyte	Blank ID	Sample Identification											
	19	Action Level	12	13	14	15	16	17	18				
Al	11.5												
B	353	706	6.7 / 21.5	5.1 / 20.6	5.9 / 21.5	9.4 / 20.5	6.8 / 21.2	7.9 / 21.2	8.7 / 21.0				
Cd	0.056		0.084 / 0.11										
Ca	101	202											
Cu	1.6	3.2											
Fe	50.9	101.8											
Mg	10.1												
Mn	0.72												
Mo	0.29		0.97 / 1.1	0.82 / 1.0		0.94 / 1.0	0.62 / 1.1	0.96 / 1.1	0.68 / 1.1				
Nb	3.7												
Si	715	1430	230J+	128J+	161J+	131J+	160J+	231J+	263J+				
Na	138	276											
Sr	0.63												
Tl	0.96												
Sn	0.93												
W	1.5		0.42 / 1.1	0.44 / 1.0	0.40 / 1.1	0.46 / 1.0	0.48 / 1.1	0.39 / 1.1	0.36 / 1.1				
Zn	4.4												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 175904
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike Analysis

Page: 1 of 1
Reviewer: W
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N (N/A) Were matrix spike percent recoveries (%R) within the control limits of (75-125)? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y (N) N/A Was a post digestion spike analyzed for ICP elements that did not meet the required criteria for matrix spike recovery?

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Matrix Spike ID	Matrix	Analyte	%R	Associated Samples	Qualifications
1	20	Soil	Sb	57.6	All Soil	J- (nd) A
			Ba	128.0	↓	J+ (d) A
			Nb	178.2		↓
			K	133.1		
			Si	191.2		
			Sr	126.8		

Comments:

LDC #: 19564
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Duplicate Analysis

Page: 1 of 1
Reviewer: MY
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)

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

(Y) N N/A Was a duplicate sample analyzed for each matrix in this SDG?

Y (N) N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤ 35% for soil samples? If no, see qualifications below. A control limit of ±R.L. (±2X R.L. for soil) was used for sample values that were <5X the R.L., including the case when only one of the duplicate sample values was <5X R.L.. If field blanks were used for laboratory duplicates, note in the Overall Assessment.

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Duplicate ID	Matrix	Analyte	RPD (Limits)	Difference (Limits)	Associated Samples	Qualifications
1	22	Soil	Ni	22.7 (≤20)		All Soil	J/UJ/A

Comments:

LDC #: 175904
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

Page: 1 of 1
Reviewer: LW
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

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

(Y) N N/A If analyte concentrations were > 50X the MDL (ICP) ,or >100X the MDL (ICP/MS), was a serial dilution analyzed?
Y (N) N/A Were ICP serial dilution percent differences (%D) ≤10%?
Y (N) N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	Diluted Sample ID	Matrix	Analyte	%D (Limits)	Associated Samples	Qualifications
1	*	1	soil	Co	11.5	All soil	J+/A
				P	13.5	↓	↓
				Sr	11.5		

Comments:

LDC#: 17590D4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: WG
2nd Reviewer:

METHOD: Metals (EPA Method 6020/6010B/7000)

(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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	3	4				
Aluminum	7510	7740	3			
Antimony	0.15	0.17		0.02	(≤1)	
Arsenic	2.5	2.6		0.1	(≤2.1)	
Barium	208	202	3			
Beryllium	0.47	0.49		0.02	(≤0.21)	
Boron	10.2	10.7		0.5	(≤20.7)	
Cadmium	0.17	0.13		0.04	(≤0.1)	
Calcium	50700	23000	75			J det / A
Chromium	7.4	8.7		1.3	(≤2.1)	
Cobalt	6.0	6.1	2			
Copper	13.0	12.7	2	~~0.3~~		
Iron	11000	11800	7			
Lead	14.7	13.0	12			
Magnesium	7870	7840	0			
Manganese	428	388	10			
Molybdenum	0.56	0.60		0.04	(≤1)	
Nickel	13.1	12.9	2			
Palladium	0.38	0.35		0.03	(≤0.21)	
Phosphorus	1120	1080	4			

LDC#: 17590D4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MM
2nd Reviewer:

METHOD: Metals (EPA Method 6020/6010B/7000)

(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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	3	4				
Potassium	2950	2980	1			
Silicon	262	188	33			
Silver	0.10	0.094		0.006	(≤0.42)	
Sodium	504	548	8			
Strontium	165	152	8			
Tin	0.52	0.56		0.04	(≤0.42)	
Titanium	547	530	3			
Tungsten	0.51	0.42		0.09	(≤1)	
Uranium	0.91	0.94		0.03	(≤0.21)	
Vanadium	24.2	26.9	11			
Zinc	32.0	32.2	1			
Zirconium	21.6	20.6		1	(≤20.7)	
Lithium	9.4	12.2		2.8	(≤10.4)	
Mercury (ug/Kg)	12.3	13.2		0.9	(≤34.6)	

Compound	Concentration (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	6	7				
Aluminum	7910	8400	6			
Antimony	0.18	0.17		0.01	(≤1.1)	
Arsenic	2.5	2.5		0	(≤2.3)	

LDC#: 17590D4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MM
2nd Reviewer:

METHOD: Metals (EPA Method 6020/6010B/7000)

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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	6	7				
Barium	198	184	7			
Beryllium	0.51	0.52		0.01	(≤0.22)	
Boron	6.8	6.6		0.2	(≤22.5)	
Cadmium	0.18	0.16		0.02	(≤0.11)	
Calcium	33900	21300	46			
Chromium	9.5	9.4		0.1	(≤2.2)	
Cobalt	6.3	7.1	12			
Copper	19.7	18.1	8			
Iron	12400	12700	2			
Lead	28.6	17.5	48			
Magnesium	10600	10200	4			
Manganese	441	571	26			
Molybdenum	0.76	0.61		0.15	(≤1.1)	
Nickel	13.5	15.2	12			
Palladium	0.33	0.30		0.03	(≤0.23)	
Phosphorus	1280	1500	16			
Potassium	2730	2670	2			
Silicon	347	286	19			
Silver	0.12	0.11		0.01	(≤0.45)	
Sodium	627	608	3			

LDC#: 17590D4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: [illegible]
2nd Reviewer: _____

METHOD: Metals (EPA Method 6020/6010B/7000)

(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 (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	6	7				
Strontium	143	120	17			
Tin	0.61	0.57		0.04	(≤0.45)	
Titanium	640	567	12			
Tungsten	0.48	0.46		0.02	(≤1.1)	
Uranium	0.78	0.81		0.03	(≤0.23)	
Vanadium	30.1	29.3	3			
Zinc	41.8	40.4	3			
Zirconium	22.0	18.7		3.3	(≤22.5)	
Lithium	9.5	10.0		0.5	(≤11.3)	
Mercury (ug/Kg)	9.0	9.9		0.9	(≤37.6)	

BRC Parcel 4A/4BSampling Event
Data Validation Reports
LDC# 17590

Wet Chemistry

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 16, 2007

Matrix: Soil

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I060284

Sample Identification

TSB-AR-01-0'
TSB-AR-01-0'-Dup
TSB-AR-01-10'
TSB-AR-02-0'
TSB-AR-02-10'
TSB-AR-04-0'
TSB-AR-04-10'
TSB-AR-05-0'
TSB-AR-05-10'
TSB-AR-07-0'
TSB-AR-07-10'
TSB-AR-04-0'MS
TSB-AR-04-0'MSD
TSB-AR-04-0'DUP

Introduction

This data review covers 14 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Bromide, Bromine, Chlorate, Chloride, Chorine, Fluoride, Nitrate as Nitrogen, Nitrite as Nitrogen, Orthophosphate as Phosphorus, and Sulfate, EPA Method 314.0 for Perchlorate, and EPA Method 1664A for TPH.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) 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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
MB	Chloride	0.040 mg/Kg	All samples in SDG F7I060284
CCB1	Chloride	0.040 mg/L	TSB-AR-02-0'
CCB2	Chloride	0.023 mg/L	TSB-AR-01-0' TSB-AR-04-0'
CCB3	Chloride	0.026 mg/L	TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AR-02-0'	Chloride Chlorine	1.7 mg/Kg 3.4 mg/Kg	2.1U mg/Kg 4.1U mg/Kg

No field blanks were identified in this SDG.

IV. 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 within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Affected Analyte	Flag	A or P
TSB-AR-04-0'MS (All samples in SDG F7I060284)	Chloride Nitrate as N Sulfate	0 (75-125) 13 (75-125) 0 (75-125)	- - -	- - -	Chloride Chlorine Nitrate as N Sulfate	J- (all detects) R (all non-detects)	A
TSB-AR-04-0'MS (All samples in SDG F7I060284)	Nitrite as N	284 (75-125)	-	-	Nitrite as N	J+ (all detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	Difference (Limits)	Affected Analyte	Flag	A or P
TSB-AR-04-0'DUP (All samples in SDG F7I060284)	Bromide	2.7 mg/Kg (≤2.6)	Bromide Bromine	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples TSB-AR-01-0' and TSB-AR-01-0'-Dup were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-01-0'	TSB-AR-01-0'-Dup				
Bromide	4.1	6.3	-	2.2 (≤2.7)	-	-
Bromine	8.2	12.7	-	4.5 (≤5.4)	-	-
Chlorate	2.1	2.8	-	0.7 (≤5.4)	-	-
Chloride	905	947	5 (≤50)	-	-	-
Chlorine	1810	1890	4 (≤50)	-	-	-
Fluoride	0.68	1.0	-	0.32 (≤1.1)	-	-
Nitrate as N	5.3	5.5	4 (≤50)	-	-	-
Sulfate	110	116	5 (≤50)	-	-	-

Analyte	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-01-0'	TSB-AR-01-0'-Dup				
Perchlorate	3440	4260	21 (≤50)	-	-	-

BRC Parcel 4A/4B Sampling Event
Wet Chemistry - Data Qualification Summary - SDG F7I060284

SDG	Sample	Analyte	Flag	A or P	Reason
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Chloride Chlorine Nitrate as N Sulfate	J- (all detects) R (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Nitrite as N	J+ (all detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Bromide Bromine	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (Difference)

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

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I060284	TSB-AR-02-0'	Chloride Chlorine	2.1U mg/Kg 4.1U mg/Kg	A

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

No Sample Data Qualified in this SDG

LDC #: 17590A6
SDG #: F7I060284
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/13/07
Page: 1 of 1
Reviewer: MM
2nd Reviewer: [signature]

V-N L-N

METHOD: (Analyte) Bromide, Bromine, Chlorate, Chloride, Chorine, Fluoride, Nitrate, Nitrite, Orthophosphate-P, Sulfate (EPA Method 300.0), Perchlorate (EPA Method 314.0), TPH (EPA Method 1664A)

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
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV	Matrix Spike/Matrix Spike Duplicates	SW	3 MS/MSD/MSP
V	Duplicates	SW	
VI.	Laboratory control samples	A	LCS/LCSD
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	(1,2)
X.	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: Soil

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

Notes:

LDC #: 17590A6
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

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

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1-11	Soil	[✓ Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4] O+G/[✓ TPH]
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
12,14	Soil	[✓ Br] Bromine [✓ Cl] Chlorine [✓ F] [✓ NO_3] [✓ NO_2] [✓ SO_4] [✓ O-PO_4] [✓ Chlorate] ClO_4 O+G/[✓ TPH]
12/3	✓	Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate [✓ ClO_4] O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH

Comments:

LDC #: 17590A6
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Inorganics, Method See Cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Were all samples associated with a given method blank?
(Y) N N/A Were any inorganic contaminants detected above the reporting limit in the method blanks? If yes, please see qualifications below.

Conc. units: mg/Kg **Associated Samples:** MB: All, CCB1: 4, CCB2: 1,6, CCB3: 2-5, 7-11

Analyte	Blank ID	Sample Identification									
		4									
Chloride (MB)	0.40 mg/Kg	1.7 / 2.1									
Chlorine	-	3.4 / 4.1									
Chloride (CCB1)	0.040 mg/L	1.7 / 2.1									
Chlorine	-	3.4 / 4.1									
Chloride (CCB2)	0.023 mg/L										
Chloride (CCB3)	0.026 mg/L										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 19570A6
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike Analysis

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

METHOD: Inorganics, Method See cover

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N (N/A) Were matrix spike percent recoveries (%R) within the control limits of 75-125 (85-115% for Method 300.0)? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Matrix Spike ID	Matrix	Analyte	%R	Associated Samples	Qualifications
1	12	Soil	Cl	0	All	J-/R/A (qual Cl + Q_2)
			NO_3-N	13	↓	↓
			NO_2-N	284		J+ UT/A
			SO_4	0	↓	J-/R/A

Comments: _____

LDC #: 19590A6
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Duplicate Analysis

Reviewer: MH
2nd Reviewer:

METHOD: Inorganics, Method See cover

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

(Y) N N/A Was a duplicate sample analyzed for each matrix in this SDG?

Y (N) N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water and ≤ 35% for soil samples (≤ 10% for Method 300.0)? If no, see qualification below. A control limit of ±CRDL (±2X CRDL for soil) was used for samples that were ≤5X the CRDL, including when only one of the duplicate sample values were ≤5X the CRDL. If field blanks were used for laboratory duplicates, see overall assessment.

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Duplicate ID	Matrix	Analyte	~~RPD (Limits)~~ Difference	Associated Samples	Qualifications
1	14	Soil	Br	2.7 (≤ 2.6) mg/kg	All	J/UJ/A (qual Br + Br_2)

Comments:

LDC#: 17590A6
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: L
2nd Reviewer: [illegible]

Inorganics, Method See Cover

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

Analyte	Concentration (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	1	2				
Bromide	4.1	6.3		2.2	(≤2.7)	
Bromine	8.2	12.7		4.5	(≤5.4)	
Chlorate	2.1	2.8		0.7	(≤5.4)	
Chloride	905	947	5			
Chlorine	1810	1890	4			
Fluoride	0.68	1.0		0.32	(≤1.1)	
Nitrate as N	5.3	5.5	4			
Perchlorate (ug/Kg)	3440	4260	21			
Sulfate	110	116	5			

Laboratory Data Consultants, Inc.
Data Validation Report

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

Collection Date: September 6, 2007

LDC Report Date: October 16, 2007

Matrix: Soil/Water

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I070120

Sample Identification

TSB-AR-08-0'
TSB-AR-08-10'
TSB-AR-11-0'
TSB-AR-11-0'-Dup
TSB-AR-11-10'
TSB-AR-14-0'
TSB-AR-14-10'
TSB-AR-13-0'
TSB-AR-13-10'
TSB-AR-10-0'
TSB-AR-10-10'
TSB-AR-9-0'
TSB-AR-9-10'
TSB-AR-12-0'
TSB-AR-12-10'
TSB-AR-3-0'
TSB-AR-3-10'
RINSATE 1
TSB-AR-13-0'MS
TSB-AR-13-0'MSD
TSB-AR-13-0'DUP
TSB-AR-10-10'MS
TSB-AR-10-10'MSD
RINSATE 1MS
RINSATE 1DUP

Introduction

This data review covers 21 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Bromide, Bromine, Chlorate, Chloride, Chorine, Fluoride, Nitrate as Nitrogen, Nitrite as Nitrogen, Orthophosphate as Phosphorus, and Sulfate, EPA Method 314.0 for Perchlorate, and EPA Method 1664A for TPH and Oil & Grease.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) 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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
MB	Orthophosphate as P	0.270 mg/L	All water samples in SDG F7I070120
MB	Chloride	0.40 mg/Kg	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-10' TSB-AR-10-0'
CCB1	Chloride	0.026 mg/L	TSB-AR-08-0'
CCB2	Chloride	0.025 mg/L	TSB-AR-13-10' TSB-AR-10-0'

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified.

Sample "RINSATE 1" was identified as a rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
RINSATE 1	9/6/07	Chloride Chlorine Nitrate as N Sulfate	0.049 mg/L 0.099 mg/L 0.017 mg/L 0.084 mg/L	All soil samples in SDG F7I070120

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified.

IV. 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 within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Affected Analyte	Flag	A or P
TSB-AR-10-10'MS/MSD (TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10')	TPH	55 (75-125)	54 (75-125)	-	TPH	J- (all detects) UJ (all non-detects)	A
TSB-AR-04-0'MS (TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-10' TSB-AR-10-0')	Chloride Nitrate as N Sulfate	0 (75-125) 13 (75-125) 0 (75-125)	- - -	- - -	Chloride Chlorine Nitrate as N Sulfate	J- (all detects) R (all non-detects)	A
TSB-AR-04-0'MS (TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-10' TSB-AR-10-0')	Nitrite as N	284 (75-125)	-	-	Nitrite as N	J+ (all detects)	A
TSB-AR-13-0'MS (TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0')	TPH	62 (75-125)	-	-	TPH	J- (all detects) UJ (all non-detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples TSB-AR-11-0' and TSB-AR-11-0'-Dup were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-11-0'	TSB-AR-11-0'-Dup				
Chloride	4.4	4.8	-	0.4 (≤2.1)	-	-
Chlorine	8.9	9.5	-	0.6 (≤4.1)	-	-
Fluoride	0.57	1.0U	-	0.43 (≤1.0)	-	-
Nitrite as N	1.6	1.3	21 (≤50)	-	-	-
Orthophosphate as P	2.0	2.0	-	0 (≤5.2)	-	-
Sulfate	36.3	29.4	21 (≤50)	-	-	-

Analyte	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-11-0'	TSB-AR-11-0'-Dup				
Perchlorate	67.2	73.0	-	5.8 (≤41.5)	-	-

BRC Parcel 4A/4B Sampling Event
Wet Chemistry - Data Qualification Summary - SDG F7I070120

SDG	Sample	Analyte	Flag	A or P	Reason
F7I070120	TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0'	TPH	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-10' TSB-AR-10-0'	Chloride Chlorine Nitrate as N Sulfate	J- (all detects) R (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-10' TSB-AR-10-0'	Nitrite as N	J+ (all detects)	A	Matrix spike/Matrix spike duplicates (%R)

BRC Parcel 4A/4B Sampling Event
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Wet Chemistry - Field Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

LDC #: 17590B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/
SDG #: F7I070120 Level III Page: 1 of 1
Laboratory: Test America Reviewer: W
2nd Reviewer:

METHOD: (Analyte) Bromide, Bromine, Chlorate, Chloride, Chorine, Fluoride, Nitrate, Nitrite, Orthophosphate-P, Sulfate (EPA Method 300.0), Perchlorate (EPA Method 314.0), TPH/O&G (EPA Method 1664A)

L-N L-N

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: 9/6/07
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV	Matrix Spike/Matrix Spike Duplicates	SW	3 MS/MSD/Dup
V	Duplicates	A	
VI.	Laboratory control samples	A	Les/LesD
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	(3,4)
X	Field blanks	SW	R=18

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 soil except # 18, 24, 25 A2

1	TSB-AR-08-0'	11	TSB-AR-10-10'	21	TSB-AR-13-0'DUP	31	
2	TSB-AR-08-10'	12	TSB-AR-9-0'	22	TSB-AR-10-10'MS	32	
3	TSB-AR-11-0'	13	TSB-AR-9-10'	23	TSB-AR-10-10'MSD	33	
4	TSB-AR-11-0'-Dup	14	TSB-AR-12-0'	24	RINSATE 1MS A2	34	
5	TSB-AR-11-10'	15	TSB-AR-12-10'	25	RINSATE 1DUP ↓	35	
6	TSB-AR-14-0'	16	TSB-AR-3-0'	26	MB	36	
7	TSB-AR-14-10'	17	TSB-AR-3-10'	27		37	
8	TSB-AR-13-0'	18	RINSATE 1 A2	28		38	
9	TSB-AR-13-10'	19	TSB-AR-13-0'MS	29		39	
10	TSB-AR-10-0'	20	TSB-AR-13-0'MSD	30		40	

Notes:

LDC #: 19590B6
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Page: 1 of 1
Reviewer: WM
2nd reviewer: ______

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1-18	Soil/Aq	[✓ Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH]
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
19, 20	Soil	Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate [✓ ClO_4] O+G/TPH
19, 21		[✓ Br] Bromine [✓ Cl] Chlorine [✓ F] [✓ NO_3] [✓ NO_2] [✓ SO_4] [✓ O-PO_4] [✓ Chlorate] ClO_4 O+G/[✓ TPH]
22, 23		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/[✓ TPH]
24, 25	Aq	[✓ Br] Bromine [✓ Cl] Chlorine [✓ F] [✓ NO_3] [✓ NO_2] [✓ SO_4] [✓ O-PO_4] [✓ Chlorate] ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH

Comments: ______

LDC #: 17590B6
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer:
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Were all samples associated with a given method blank?
Y N N/A Were any inorganic contaminants detected above the reporting limit in the method blanks? If yes, please see qualifications below.

Conc. units: mg/L **Associated Samples:** All AQ (ND)

Analyte	Blank ID	Sample Identification									
O-PO4-P (CCB)	0.270 mg/L										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 17590B6
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer:
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Were all samples associated with a given method blank?
Y N N/A Were any inorganic contaminants detected above the reporting limit in the method blanks? If yes, please see qualifications below.

Conc. units: mg/Kg **Associated Samples:** MB:1-7, 9,10, CCB1: 1, CCB2: 9,10 (>RL)

Analyte	Blank ID	Sample Identification									
Chloride (MB)	0.40 mg/Kg										
Chloride (CCB1)	0.026 mg/L										
Chloride (CCB2)	0.025 mg/L										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 17590B6
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MK
2nd Reviewer:

METHOD: Inorganics, EPA Method See Cover

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

Blank units: mg/L **Associated sample units:** mg/Kg
Sampling date: 9/6/07 Soil factor applied 10x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All Soil (> RL)

Analyte	Blank ID	Action Limit	Sample Identification								
	18										
Chloride	0.049										
Chlorine	0.099										
Nitrate as N	0.017										
Sulfate	0.084										

Blank units: **Associated sample units:**
Sampling date: Soil factor applied
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Analyte	Blank ID	Action Limit	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 17509B6
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: MM
2nd Reviewer:

METHOD: Inorganics, EPA Method See cover

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

(Y) N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	23/23	Soil	TPH	55	54		11-17	J- /UJ/A

Comments:

LDC #: 19590B8
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike Analysis

Page: 1 of 1
Reviewer: MM
2nd Reviewer:

METHOD: Inorganics, Method See cover

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125 (85-115% for Method 300.0)? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Matrix Spike ID	Matrix	Analyte	%R	Associated Samples	Qualifications
1	TSB-AR-04-0'	Soil	Cl	0	1-7, 9, 10	J-/R-/A (qual cl+ NO_2)
			NO_3-N	13	↓	↓
			NO_2-N	284		J+/UJ/A
			SO_4	0		J-/R/A
2	19	Soil	TPH	62	8-10	J-/UJ/A

Comments:

LDC#: 17590B6
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: [signature]
2nd Reviewer:

Inorganics, Method See Cover

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

Analyte	Concentration (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	3	4				
Chloride	4.4	4.8		0.4	(≤2.1)	
Chlorine	8.9	9.5		0.6	(≤4.1)	
Fluoride	0.57	1.0U		0.43	(≤1.0)	
Nitrite as N	1.6	1.3	21			
Perchlorate (ug/Kg)	67.2	73.0		5.8	(≤41.5)	
Orthophosphate as P	2.0	2.0		0	(≤5.2)	
Sulfate	36.3	29.4	21			

V:\FIELD DUPLICATES\FD_inorganic\17590B6.wpd

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 15, 2007

Matrix: Soil/Water

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I100142

Sample Identification

RINSATE 2
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'**
RINSATE 2MS

RINSATE 2DUP
TSB-AR-06-0'MS
TSB-AR-06-0'MSD
TSB-AJ-02-0'MS
TSB-AJ-02-0'DUP
TSB-BJ-06-0'MS
TSB-BJ-06-0'DUP

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 24 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Bromide, Bromine, Chlorate, Chloride, Chorine, Fluoride, Nitrate as Nitrogen, Nitrite as Nitrogen, Orthophosphate as Phosphorus, and Sulfate, EPA Method 314.0 for Perchlorate, and EPA Method 1664A for TPH and Oil & Grease.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) 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 III.

Field duplicates are summarized in Section IX.

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	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
RINSATE 2	Nitrate as N Nitrite as N Orthophosphate as P	75.75 hours 75.75 hours 75.75 hours	48 hours 48 hours 48 hours	J- (all detects) UJ (all non-detects)	P
RINSATE 2DUP	Nitrate as N Nitrite as N Orthophosphate as P	76 hours 76 hours 76 hours	48 hours 48 hours 48 hours	J- (all detects) UJ (all non-detects)	P
RINSATE 2MS	Nitrate as N Nitrite as N Orthophosphate as P	76.25 hours 76.25 hours 76.25 hours	48 hours 48 hours 48 hours	J- (all detects) UJ (all non-detects)	P

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

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
MB	Chloride	0.22 mg/Kg	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'**

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified.

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

Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
RINSATE 2	9/7/07	Chloride Chlorine Nitrate as N Sulfate	0.062 mg/L 0.12 mg/L 0.027 mg/L 0.15 mg/L	All soil samples in SDG F7I100142

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-AJ-01-0'**	Chloride Chlorine Nitrate as N	1.6 mg/Kg 3.1 mg/Kg 0.53 mg/Kg	2.1U mg/Kg 4.1U mg/Kg 0.53J+ mg/Kg
TSB-AJ-03-10'**	Nitrate as N	0.82 mg/Kg	0.82J+ mg/Kg

IV. 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 within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
TSB-AR-10-10'MS/MSD (TSB-AR-06-0' TSB-AR-06-0'-Dup TSB-AR-06-10')	TPH	55 (75-125)	54 (75-125)	-	J- (all detects) UJ (all non-detects)	A
TSB-AJ-02-0'MS (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'**)	Orthophosphate as P	71 (75-125)	-	-	J- (all detects) UJ (all non-detects)	A
TSB-BJ-06-0'MS (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'**)	TPH	65 (75-125)	-	-	J- (all detects) UJ (all non-detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

All sample result verifications were 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.

VIII. Overall Assessment of Data

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

IX. 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 contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup				
Bromide	4.6	7.6	-	3 (≤2.6)	J (all detects)	A
Bromine	9.1	15.2	-	6.1 (≤5.2)	J (all detects)	A
Chlorate	2.8	4.6	-	1.8 (≤5.2)	-	-
Chloride	432	2210	135 (≤50)	-	J (all detects)	A
Chlorine	863	4410	135 (≤50)	-	J (all detects)	A
Fluoride	0.87	0.69	-	0.18 (≤1.0)	-	-
Nitrate as N	36.6	229	145 (≤50)	-	J (all detects)	A
Sulfate	370	1450	119 (≤50)	-	J (all detects)	A

Analyte	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup				
Perchlorate	14700	11200	27 (≤50)	-	-	-

Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**				
Chloride	12.6	9.1	32 (≤50)	-	-	-
Chlorine	25.2	18.3	32 (≤50)	-	-	-
Fluoride	0.79	1.0U	-	0.21 (≤1.0)	-	-

Analyte	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**				
Nitrate as N	1.8	1.6	12 (≤50)	-	-	-
Sulfate	36.2	30.8	16 (≤50)	-	-	-

Analyte	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**				
Perchlorate	154	151	-	3 (≤40.6)	-	-

BRC Parcel 4A/4B Sampling Event
Wet Chemistry - Data Qualification Summary - SDG F7I100142

SDG	Sample	Analyte	Flag	A or P	Reason
F7I100142	RINSATE 2	Nitrate as N Nitrite as N Orthophosphate as P	J- (all detects) UJ (all non-detects)	P	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-02-0'** TSB-BJ-02-10'** TSB-BR-06-0'** TSB-BR-06-10'**	TPH	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I100142	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'**	Orthophosphate as P	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I100142	TSB-AR-06-0' TSB-AR-06-0'-Dup	Bromide Bromine	J (all detects) J (all detects)	A	Field duplicates (Difference)
F7I100142	TSB-AR-06-0' TSB-AR-06-0'-Dup	Chloride Chlorine Nitrate as N Sulfate	J (all detects) J (all detects) J (all detects) J (all detects)	A	Field duplicates (RPD)

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

No Sample Data Qualified in this SDG

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

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I100142	TSB-AJ-01-0'**	Chloride Chlorine Nitrate as N	2.1U mg/Kg 4.1U mg/Kg 0.53J+ mg/Kg	A
F7I100142	TSB-AJ-03-10'**	Nitrate as N	0.82J+ mg/Kg	A

LDC #: 17590C6
SDG #: F7I100142
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 10/14/07
Page: 1 of 1
Reviewer: MH
2nd Reviewer:

METHOD: (Analyte) Bromide, Bromine, Chlorate, Chloride, Chorine, Fluoride, Nitrate, Nitrite, Orthophosphate-P, Sulfate (EPA Method 300.0), Perchlorate (EPA Method 314.0), TPH/O&G (EPA Method 1664A)

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: 9/7/07
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD/Dup
V	Duplicates	A	
VI.	Laboratory control samples	A	LCS/LCSD
VII.	Sample result verification	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	(2,3), (7,8)
X	Field blanks	SW	R21

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 Soil effect #1, 20, 21 A2

1	RINSATE 2 A2	11	TSB-AJ-03-10'**	21	RINSATE 2DUP A2	31	
2	TSB-AR-06-0'	12	TSB-BJ-06-0'**	22	TSB-AR-06-0'MS	32	
3	TSB-AR-06-0'-Dup	13	TSB-BJ-06-10'**	23	TSB-AR-06-0'MSD	33	
4	TSB-AR-06-10'	14	TSB-BJ-01-0'**	24	TSB-AJ-02-0'MS	34	
5	TSB-AJ-01-0'**	15	TSB-BJ-01-10'	25	TSB-AJ-02-0'DUP	35	
6	TSB-AJ-01-10'**	16	TSB-BJ-02-0'**	26	TSB-BJ-06-0'MS	36	
7	TSB-AJ-02-0'**	17	TSB-BJ-02-10'**	27	TSB-BJ-06-0'DUP	37	
8	TSB-AJ-02-0'-Dup**	18	TSB-BR-06-0'**	28	MB	38	
9	TSB-AJ-02-10'**	19	TSB-BR-06-10'**	29		39	
10	TSB-AJ-03-0'**	20	RINSATE 2MS A2	30		40	

Notes:

LDC #: 159c6
SDG #: see cover

VALIDATION FINDINGS CHECKLIST

Reviewer: MM
2nd Reviewer:

Method: Inorganics (EPA Method See cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)	✓			
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.	✓			
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 19590 c6
SDG #: see cover

VALIDATION FINDINGS CHECKLIST

Reviewer: MM
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
X. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 19590cb
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

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

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1-19	Soil/Aq	[✓ Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH]
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
20,21	Aq	[✓ Br] Bromine [✓ Cl] Chlorine [✓ F] [✓ NO_3] [✓ NO_2] [✓ SO_4] [✓ O-PO_4] [✓ Chlorate] ClO_4 O+G/TPH
22,23	Soil	Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate [✓ ClO_4] O+G/TPH
24,25		[✓ Br] Bromine [✓ Cl] Chlorine [✓ F] [✓ NO_3] [✓ NO_2] [✓ SO_4] [✓ O-PO_4] [✓ Chlorate] ClO_4 O+G/TPH
26,27		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+[✓ G/TPH]
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH
		Br Bromine Cl Chlorine F NO_3 NO_2 SO_4 O-PO_4 Chlorate ClO_4 O+G/TPH

Comments:

LDC #: 17509C6
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

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

All circled dates have exceeded the technical holding time.
(N) N N/A Were all samples preserved as applicable to each method ?
(N) N N/A Were all cooler temperatures within validation criteria?

Method:	300.0					
Parameters:	NO_3-N, NO_2-N, O-PO_4-P					
Technical holding time:	48 hr					

Sample ID	Sampling date	Analysis date	Analysis date	Analysis date	Analysis date	Analysis date	Qualifier
1	9/7/09 1430	9/10/09 1813	(75.75 hr)				J-/UJ/P
21	↓	9/10/09 1830	(76 hr)				↓
20	↓	9/10/09 1848	(76.25 hr)				✓

LDC #: 17590C6
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: [illegible]
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Were all samples associated with a given method blank?
(N) N N/A Were any inorganic contaminants detected above the reporting limit in the method blanks? If yes, please see qualifications below.

Conc. units: mg/Kg **Associated Samples:** MB:7-19 (> RL)

Analyte	Blank ID	Sample Identification									
Chloride (MB)	0.22 mg/Kg										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 17590C6
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MM
2nd Reviewer:

METHOD: Inorganics, EPA Method See Cover
(Y) N N/A Were field blanks identified in this SDG?
(Y) N N/A Were target analytes detected in the field blanks?
Blank units: mg/L **Associated sample units:** mg/Kg
Sampling date: 9/7/07 Soil factor applied 10x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All Soil

Analyte	Blank ID	Action Limit	Sample Identification								
	1		5	11							
Chloride	0.062		1..6 / 2.1								
Chlorine	0.12		3.1 / 4.1								
Nitrate as N	0.027	1.35	0.53J+	0.82J+							
Sulfate	0.15										

Blank units: **Associated sample units:**
Sampling date: Soil factor applied
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Analyte	Blank ID	Action Limit	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 125906
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: MM
2nd Reviewer:

METHOD: Inorganics, EPA Method See cover

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

(Y) N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	TSB-AR-10-10'	Soil	TPH	55	54		2-4	J-/UJ/A

Comments:

LDC #: 19590 C6
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike Analysis

Page: 1 of 1
Reviewer: MM
2nd Reviewer:

See cover

METHOD: Inorganics, Method _____

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125 (85-115% for Method 300.0)? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

LEVEL IV ONLY:

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Matrix Spike ID	Matrix	Analyte	%R	Associated Samples	Qualifications
1	24	Soil	o-PO4-P	71	7-19	J-/UT/A
2	26	Soil	TPH	65	5-19	↓

Comments: _____

MS.6

LDC#: 17590C6
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MM
2nd Reviewer:

Inorganics, Method See Cover

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

Analyte	Concentration (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	2	3				
Bromide	4.6	7.6		3	(≤2.6)	J det / A
Bromine	9.1	15.2		6.1	(≤5.2)	J det / A
Chlorate	2.8	4.6		1.8	(≤5.2)	
Chloride	432	2210	135			J det / A
Chlorine	863	4410	135			J det / A
Fluoride	0.87	0.69		0.18	(≤1.0)	
Nitrate as N	36.6	229	145			J det / A
Perchlorate (ug/Kg)	14700	11200	27			
Sulfate	370	1450	119			J det / A

Analyte	Concentration (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	7	8				
Chloride	12.6	9.1	32			
Chlorine	25.2	18.3	32			
Fluoride	0.79	1.0U		0.21	(≤1.0)	
Nitrate as N	1.8	1.6	12			
Perchlorate (ug/Kg)	154	151		3	(≤40.6)	
Sulfate	36.2	30.8	16			

LDC #: 17590c6
SDG #: see cover

Validatin Findings Worksheet
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: W
2nd Reviewer:

Method: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of Cl was recalculated.Calibration date: 9/29/-7

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution
True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/L)	Area	Recalculated r or r^2	Reported r or r^2	Acceptable (Y/N)
Initial calibration	Cl	s1	200	0.057	*0.9998708*	0.999800	Y
		s2	500	0.141			
		s3	1000	0.281			
		s4	2500	0.695			
		s5	5000	1.447			
CCV Calibration verification	Chloride	4.000	3.907		97.7	NR	Y
CCV Calibration verification	NO_3-N	0.400	0.3596		89.9	89.89	↓
CCV Calibration verification	SO_4	100	105		105	105	↓

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

LDC #: 19590b6
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: MM
2nd Reviewer: _____

METHOD: Inorganics, Method See cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	TPH ~~D+G~~	537	666	81	81	Y
2a	Matrix spike sample	SO4	(SSR-SR) 6.14	35.00	101	101	↓
2S	Duplicate sample	SO4	35.4	36.2	2.2	2.4	↓

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

LDC #: 19506

SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: Inorganics, Method See cover

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for 5, 17 reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

$NO_3\text{-}N = \frac{\text{Area} \times \text{Final Volume}}{0.000682 \times \text{Initial wt} \times \%\text{T Solid}}$

$NO_3\text{-}N = \frac{0.136 \times 10^6}{0.000682 \times 0.929} = 214.6\ ug/Kg = 2.147\ mg/g$

#	Sample ID	Analyte	Reported Concentration (mg/g)	Calculated Concentration (mg/g)	Acceptable (Y/N)
1	5	Cl	1.6	1.6	Y
		Cl_2	3.1	3.1	
		$NO_3\text{-}N$	0.53	0.53	
		ClO_4 (mg/kg)	64.1	64.0	
		SO_4	11.7	11.7	
2	17	chloride	13.7	13.7	Y
		Cl	643	643	
		Cl_2	1290	1290	
		F	1.7	1.7	
		$NO_3\text{-}N$	2.2	2.1	
		ClO_4 (mg/kg)	17000	17000	
		SO_4	1780	1780	

Note:

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 16, 2007

Matrix: Soil/Water

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I110258

Sample Identification

TSB-BR-05-0'
TSB-BR-05-10'
TSB-BR-04-0'
TSB-BR-04-0'(FD)
TSB-BR-04-10'
TSB-BJ-03-0'
TSB-BJ-03-0'(FD)
TSB-BJ-03-10'
TSB-BJ-05-0'
TSB-BJ-05-10'
TSB-BR-01-0'
TSB-BR-01-10'
TSB-BJ-04-0'
TSB-BJ-04-10'
TSB-BR-02-0'
TSB-BR-02-10'
TSB-BR-03-0'
TSB-BR-03-10'
RINSATE 3
TSB-BR-05-0'MS
TSB-BR-05-0'MSD
TSB-BR-05-0'DUP
RINSATE 3MS
RINSATE 3DUP

Introduction

This data review covers 21 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Bromide, Bromine, Chlorate, Chloride, Chorine, Fluoride, Nitrate as Nitrogen, Nitrite as Nitrogen, Orthophosphate as Phosphorus, and Sulfate, EPA Method 314.0 for Perchlorate, and EPA Method 1664A for TPH and Oil & Grease.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) 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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
MB	Chloride	0.036 mg/L	All water samples in SDG F7I110258
CCB	Chloride Orthophosphate as P	0.025 mg/L 0.229 mg/L	All water samples in SDG F7I110258
MB	n-Hexane extractable material, SGT	3.3 mg/Kg	All soil samples in SDG F7I110258

Sample concentrations were compared to concentrations detected in the method blanks as required by the QAPP. No sample data was qualified with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RINSATE 3	Chloride Chlorine	0.048 mg/L 0.096 mg/L	0.20U mg/L 0.40U mg/L
TSB-BR-05-0'	n-Hexane extractable material, SGT	37.4 mg/Kg	204U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
TSB-BR-05-10'	n-Hexane extractable material, SGT	54.8 mg/Kg	219U mg/Kg
TSB-BR-04-0'	n-Hexane extractable material, SGT	51.9 mg/Kg	207U mg/Kg
TSB-BR-04-0'(FD)	n-Hexane extractable material, SGT	48.1 mg/Kg	206U mg/Kg
TSB-BR-04-10'	n-Hexane extractable material, SGT	43.1 mg/Kg	215U mg/Kg
TSB-BJ-03-0'	n-Hexane extractable material, SGT	169 mg/Kg	225U mg/Kg
TSB-BJ-03-0'(FD)	n-Hexane extractable material, SGT	96.9 mg/Kg	215U mg/Kg
TSB-BJ-03-10'	n-Hexane extractable material, SGT	62.1 mg/Kg	248U mg/Kg
TSB-BJ-05-0'	n-Hexane extractable material, SGT	51.8 mg/Kg	207U mg/Kg
TSB-BJ-05-10'	n-Hexane extractable material, SGT	80.4 mg/Kg	210U mg/Kg
TSB-BR-01-0'	n-Hexane extractable material, SGT	54.7 mg/Kg	205U mg/Kg
TSB-BR-01-10'	n-Hexane extractable material, SGT	50.2 mg/Kg	215U mg/Kg
TSB-BJ-04-0'	n-Hexane extractable material, SGT	58.4 mg/Kg	206U mg/Kg
TSB-BJ-04-10'	n-Hexane extractable material, SGT	35.8 mg/Kg	215U mg/Kg
TSB-BR-02-0'	n-Hexane extractable material, SGT	47.8 mg/Kg	205U mg/Kg
TSB-BR-02-10'	n-Hexane extractable material, SGT	28.4 mg/Kg	212U mg/Kg
TSB-BR-03-0'	n-Hexane extractable material, SGT	42.4 mg/Kg	212U mg/Kg
TSB-BR-03-10'	n-Hexane extractable material, SGT	49.1 mg/Kg	210U mg/Kg

Sample "RINSATE 3" was identified as a rinsate. No contaminant concentrations were found in this blank with the following exceptions:

Rinsate ID	Sampling Date	Analyte	Concentration	Associated Samples
RINSATE 3	9/10/07	Chloride Chlorine Sulfate	0.048 mg/L 0.096 mg/L 0.075 mg/L	All soil samples in SDG F7I110258

Sample concentrations were compared to concentrations detected in the field blanks as required by the QAPP. No sample data was qualified.

IV. 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 within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Affected Analyte	Flag	A or P
TSB-BR-05-0'MS/MSD (All soil samples in SDG F7I110258)	Orthophosphate as P TPH	74 (75-125) 62 (75-125)	- 64 (75-125)	- -	Orthophosphate as P n-Hexane extractable material, SGT TPH	J- (all detects) UJ (all non-detects)	A

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VI. Laboratory Control Samples

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

VII. Sample Result Verification

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. 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 contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)				
Chloride	13.1	7.8	-	5.3 (≤2.1)	J (all detects)	A
Chlorine	26.2	15.6	-	10.6 (≤4.2)	J (all detects)	A
Fluoride	1.0U	0.56	-	0.44 (≤1.0)	-	-
Nitrate as N	3.5	2.4	37 (≤50)	-	-	-
Sulfate	536	201	91 (≤50)	-	J (all detects)	A
n-Hexane, extractable material, SGT	51.9	48.1	-	3.8 (≤207)	-	-

Analyte	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BR-04-0'	TSB-BR-04-0'(FD)				
Perchlorate	1280	368	-	912 (≤206)	J (all detects)	A

Analyte	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
Chloride	345	313	10 (≤50)	-	-	-
Chlorine	689	627	9 (≤50)	-	-	-
Nitrate as N	6.9	6.6	4 (≤50)	-	-	-
Sulfate	256	280	9 (≤50)	-	-	-
n-Hexane, Extractable Material, SGT	169	96.9	-	72.1 (≤225)	-	-

Analyte	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
Perchlorate	349	9880	-	9531 (≤431)	J (all detects)	A

BRC Parcel 4A/4B Sampling Event
Wet Chemistry - Data Qualification Summary - SDG F7I110258

SDG	Sample	Analyte	Flag	A or P	Reason
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10'	Orthophosphate as P n-Hexane extractable material, SGT TPH	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F7I110258	TSB-BR-04-0' TSB-BR-04-0'(FD)	Chloride Chlorine Perchlorate	J (all detects) J (all detects) J (all detects)	A	Field duplicates (Difference)
F7I110258	TSB-BR-04-0' TSB-BR-04-0'(FD)	Sulfate	J (all detects)	A	Field duplicates (RPD)
F7I110258	TSB-BJ-03-0' TSB-BJ-03-0'(FD)	Perchlorate	J (all detects)	A	Field duplicates (Difference)

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

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I110258	RINSATE 3	Chloride Chlorine	0.20U mg/L 0.40U mg/L	A
F7I110258	TSB-BR-05-0'	n-Hexane extractable material, SGT	204U mg/Kg	A
F7I110258	TSB-BR-05-10'	n-Hexane extractable material, SGT	219U mg/Kg	A
F7I110258	TSB-BR-04-0'	n-Hexane extractable material, SGT	207U mg/Kg	A
F7I110258	TSB-BR-04-0'(FD)	n-Hexane extractable material, SGT	206U mg/Kg	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
F7I110258	TSB-BR-04-10'	n-Hexane extractable material, SGT	215U mg/Kg	A
F7I110258	TSB-BJ-03-0'	n-Hexane extractable material, SGT	225U mg/Kg	A
F7I110258	TSB-BJ-03-0'(FD)	n-Hexane extractable material, SGT	215U mg/Kg	A
F7I110258	TSB-BJ-03-10'	n-Hexane extractable material, SGT	248U mg/Kg	A
F7I110258	TSB-BJ-05-0'	n-Hexane extractable material, SGT	207U mg/Kg	A
F7I110258	TSB-BJ-05-10'	n-Hexane extractable material, SGT	210U mg/Kg	A
F7I110258	TSB-BR-01-0'	n-Hexane extractable material, SGT	205U mg/Kg	A
F7I110258	TSB-BR-01-10'	n-Hexane extractable material, SGT	215U mg/Kg	A
F7I110258	TSB-BJ-04-0'	n-Hexane extractable material, SGT	206U mg/Kg	A
F7I110258	TSB-BJ-04-10'	n-Hexane extractable material, SGT	215U mg/Kg	A
F7I110258	TSB-BR-02-0'	n-Hexane extractable material, SGT	205U mg/Kg	A
F7I110258	TSB-BR-02-10'	n-Hexane extractable material, SGT	212U mg/Kg	A
F7I110258	TSB-BR-03-0'	n-Hexane extractable material, SGT	212U mg/Kg	A
F7I110258	TSB-BR-03-10'	n-Hexane extractable material, SGT	210U mg/Kg	A

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

No Sample Data Qualified in this SDG

LDC #: 17590D6
SDG #: F7I110258
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/13/07
Page: 1 of 1
Reviewer: MM
2nd Reviewer:

METHOD: (Analyte) Bromide, Bromine, Chlorate, Chloride, Chorine, Fluoride, Nitrate, Nitrite, Orthophosphate-P, Sulfate (EPA Method 300.0), Perchlorate (EPA Method 314.0), TPH/O&G (EPA Method 1664A)

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
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV	Matrix Spike/Matrix Spike Duplicates	SW	
V	Duplicates	A	
VI.	Laboratory control samples	A	LCS/LCSD
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	(3,4)(6,7)
X	Field blanks	SW	R=19

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 soil except #19, 23, 24, 25

1	TSB-BR-05-0'	11	TSB-BR-01-0'	21	TSB-BR-05-0'MSD	31	
2	TSB-BR-05-10'	12	TSB-BR-01-10'	22	TSB-BR-05-0'DUP	32	
3	TSB-BR-04-0'	13	TSB-BJ-04-0'	23	RINSATE 3MS A2	33	
4	TSB-BR-04-0'(FD)	14	TSB-BJ-04-10'	24	RINSATE 3DUP ↓	34	
5	TSB-BR-04-10'	15	TSB-BR-02-0'	25	FB	35	
6	TSB-BJ-03-0'	16	TSB-BR-02-10'	26		36	
7	TSB-BJ-03-0'(FD)	17	TSB-BR-03-0'	27		37	
8	TSB-BJ-03-10'	18	TSB-BR-03-10'	28		38	
9	TSB-BJ-05-0'	19	RINSATE 3 A2	29		39	
10	TSB-BJ-05-10'	20	TSB-BR-05-0'MS	30		40	

Notes:

LDC #: 17590D6
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

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

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1-19	Soil/Aq	[✓ Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH]
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
~20, 24	Soil	Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate [✓ ClO$_4$] O+G/[✓ TPH]
20, 24	↓	[✓ Br] Bromine [✓ Cl] Chlorine [✓ F] [✓ NO$_3$] [✓ NO$_2$] [✓ SO$_4$] [✓ O-PO$_4$] [✓ Chlorate] ClO$_4$ O+G/TPH
~~22, 24~~	~~Aq~~	Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
~23, 24	Aq	[✓ Br] Bromine [✓ Cl] Chlorine [✓ F] [✓ NO$_3$] [✓ NO$_2$] [✓ SO$_4$] [✓ O-PO$_4$] [✓ Chlorate] ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH
		Br Bromine Cl Chlorine F NO$_3$ NO$_2$ SO$_4$ O-PO$_4$ Chlorate ClO$_4$ O+G/TPH

Comments:

LDC #: 17590D6
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: MM
2nd Reviewer: _____

METHOD: Inorganics, Method See Cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Were all samples associated with a given method blank?
(Y) N N/A Were any inorganic contaminants detected above the reporting limit in the method blanks? If yes, please see qualifications below.

Conc. units: mg/L **Associated Samples:** All AQ

Analyte	Blank ID	Sample Identification									
		19									
Chloride (MB)	0.036	0.048/ 0.20									
Chlorine		0.096 / 0.40									
Chloride (CCB)	0.025	0.048/ 0.20									
Chlorine		0.096 / 0.40									
O-PO4-P	0.229										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 17590D6
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: MM
2nd Reviewer: _____

METHOD: Inorganics, Method See Cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Were all samples associated with a given method blank?
Y N N/A Were any inorganic contaminants detected above the reporting limit in the method blanks? If yes, please see qualifications below.

Conc. units: mg/Kg **Associated Samples:** MB: All Soil

Analyte	Blank ID	Sample Identification									
	MB	1	2	3	4	5	6	7	8	9	10
n-Hexane Extractable Material, SGT	3.3	37.4 / 204	54.8 / 219	51.9 / 207	48.1 / 206	43.1 / 215	169 / 225	96.9 / 215	62.1 / 248	51.8 / 207	80.4 / 210

Analyte	Blank ID	Sample Identification									
	MB	11	12	13	14	15	16	17	18		
n-Hexane Extractable Material, SGT	3.3	54.7 / 205	50.2 / 215	58.4 / 206	35.8 / 215	47.8 / 205	28.4 / 212	42.4 / 212	49.1 / 210		

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 17590D6
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: W
2nd Reviewer:

METHOD: Inorganics, EPA Method See Cover
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target analytes detected in the field blanks?
Blank units: mg/L **Associated sample units:** mg/Kg
Sampling date: 9/10/07 Soil factor applied 10x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All Soil (> RL)

Analyte	Blank ID	Action Limit	Sample Identification								
	19										
Chloride	0.048										
Chlorine	0.096										
Sulfate	0.075										

Blank units: **Associated sample units:**
Sampling date: Soil factor applied
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Analyte	Blank ID	Action Limit	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 175906
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike Analysis

Page: 1 of 1
Reviewer: MM
2nd Reviewer:

METHOD: Inorganics, Method See Cover

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

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125 (85-115% for Method 300.0)? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Matrix Spike ID	Matrix	Analyte	%R	Associated Samples	Qualifications
1	20	Soil	o_PO4-P	74	All Soil	J-/4J/A

Comments:

LDC #: 1759-06
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: [illegible]
2nd Reviewer: ____

METHOD: Inorganics, EPA Method See cover

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

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

(Y) N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	20/21	Soil	TPH	62	64		All Soil	J-/UJ/A (fuel n-Hexane Extractable Material, SGT + TPH)

Comments: ____

LDC#: 17590D6
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: W
2nd Reviewer:

Inorganics, Method See Cover

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

Analyte	Concentration (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	3	4				
Chloride	13.1	7.8		5.3	(≤2.1)	J det / A
Chlorine	26.2	15.6		10.6	(≤4.2)	J det / A
Fluoride	1.0U	0.56		0.44	(≤1.0)	
Nitrate as N	3.5	2.4	37			
Perchlorate (ug/Kg)	1280	368		912	(≤206)	J det / A
Sulfate	536	201	91			J det / A
n-Hexane, Extractable Material, SGT	51.9	48.1		3.8	(≤207)	

Analyte	Concentration (mg/Kg)		RPD (≤50)	Difference	Limits	Qualification (Parent only)
	6	7				
Chloride	345	313	10			
Chlorine	689	627	9			
Nitrate as N	6.9	6.6	4			
Perchlorate (ug/Kg)	349	9880		9531	(≤431)	J det / A
Sulfate	256	280	9			
n-Hexane, Extractable Material, SGT	169	96.9		72.1	(≤225)	

BRC Parcel 4A/4BSampling Event
Data Validation Reports
LDC# 17590

GRO

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 22, 2007

Matrix: Soil

Parameters: Gasoline Range Organics

Validation Level: EPA Level III

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I060284

Sample Identification

TSB-AR-01-0'
TSB-AR-01-0'-Dup
TSB-AR-01-10'
TSB-AR-02-0'
TSB-AR-02-10'
TSB-AR-04-0'
TSB-AR-04-10'
TSB-AR-05-0'
TSB-AR-05-10'
TSB-AR-07-0'
TSB-AR-07-10'
TSB-AR-04-0'MS
TSB-AR-04-0'MSD

Introduction

This data review covers 13 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Gasoline Range Organics.

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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. 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 within QC limits.

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples TSB-AR-01-0' and TSB-AR-01-0'-Dup were identified as field duplicates. No gasoline range organics were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Data Qualification Summary - SDG F7I060284

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG F7I060284

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Field Blank Data Qualification Summary - SDG F7I060284

No Sample Data Qualified in this SDG

LDC #: 17590A7 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/15/07
SDG #: F7I060284 Level III Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: JVL
2nd Reviewer:

METHOD: GC Gasoline Range Organics (EPA SW 846 Method 8015)

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: 9/05/07
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	A	
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D = 1,2
X.	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: Soil

1	TSB-AR-01-0' D	11	TSB-AR-07-10'	21		31	
2	TSB-AR-01-0'-Dup D	12	TSB-AR-04-0'MS	22		32	
3	TSB-AR-01-10'	13	TSB-AR-04-0'MSD	23		33	
4	TSB-AR-02-0'	14	7253196 MB	24		34	
5	TSB-AR-02-10'	15	7254163 MB	25		35	
6	TSB-AR-04-0'	16		26		36	
7	TSB-AR-04-10'	17		27		37	
8	TSB-AR-05-0'	18		28		38	
9	TSB-AR-05-10'	19		29		39	
10	TSB-AR-07-0'	20		30		40	

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

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

Collection Date: September 6, 2007

LDC Report Date: October 22, 2007

Matrix: Soil/Water

Parameters: Gasoline Range Organics

Validation Level: EPA Level III

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I070120

Sample Identification

TSB-AR-08-0'
TSB-AR-08-10'
TSB-AR-11-0'
TSB-AR-11-0'-Dup
TSB-AR-11-10'
TSB-AR-14-0'
TSB-AR-14-10'
TSB-AR-13-0'
TSB-AR-13-10'
TSB-AR-10-0'
TSB-AR-10-10'
TSB-AR-9-0'
TSB-AR-9-10'
TSB-AR-12-0'
TSB-AR-12-10'
TSB-AR-3-0'
TSB-AR-3-10'
RINSATE 1
TSB-AR-13-0'MS
TSB-AR-13-0'MSD
TSB-AR-10-10'MS
TSB-AR-10-10'MSD
RINSATE 1MS
RINSATE 1MSD

Introduction

This data review covers 21 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Gasoline Range Organics.

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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks.

Sample "RINSATE 1" was identified as a rinsate. No gasoline range organic contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. 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 within QC limits.

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples TSB-AR-11-0' and TSB-AR-11-0'-Dup were identified as field duplicates. No gasoline range organics were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Field Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

LDC #: 17590B7 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/16/07
SDG #: F7I070120 Level III Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: JVC
2nd Reviewer:

METHOD: GC Gasoline Range Organics (EPA SW 846 Method 8015)

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: 9/06/07
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	A	
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D = 3, 4
X.	Field blanks	ND	R = 18

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: Soil & Water

1	TSB-AR-08-0'	S	11	TSB-AR-10-10'	S	21	TSB-AR-10-10'MS	S	31	7254163 MB
2	TSB-AR-08-10'		12	TSB-AR-9-0'		22	TSB-AR-10-10'MSD		32	7254164 MB
3	TSB-AR-11-0'		13	TSB-AR-9-10'		23	RINSATE 1MS	W	33	7257149 MB
4	TSB-AR-11-0'-Dup		14	TSB-AR-12-0'		24	RINSATE 1MSD		34	
5	TSB-AR-11-10'		15	TSB-AR-12-10'		25			35	
6	TSB-AR-14-0'		16	TSB-AR-3-0'		26			36	
7	TSB-AR-14-10'		17	TSB-AR-3-10'		27			37	
8	TSB-AR-13-0'		18	RINSATE 1	W	28			38	
9	TSB-AR-13-10'		19	TSB-AR-13-0'MS	S	29			39	
10	TSB-AR-10-0'		20	TSB-AR-13-0'MSD		30			40	

Notes:

LDC Report# 17590C7

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 22, 2007

Matrix: Soil/Water

Parameters: Gasoline Range Organics

Validation Level: EPA Level III & IV

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I100142

Sample Identification

RINSATE 2
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-AR-06-0'MS
TSB-AR-06-0'MSD
TSB-BJ-06-10'MS
TSB-BJ-06-10'MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 22 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 8015 for Gasoline Range Organics.

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 III.

Field duplicates are summarized in Section IX.

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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for all compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks.

Sample "RINSATE 2" was identified as a rinsate. No gasoline range organic contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. Matrix Spike/Matrix Spike Duplicates

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

c. Laboratory Control Samples

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

V. Target Compound Identification

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.

VI. 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.

VII. 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.

VIII. Overall Assessment of Data

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

IX. 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 gasoline range organics were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Data Qualification Summary - SDG F7I100142

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

LDC #: 17590C7 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/17/07
SDG #: F7I100142 Level III/IV Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: SVG
2nd Reviewer: q

METHOD: GC Gasoline Range Organics (EPA SW 846 Method 8015)

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: 9/07/07
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	A	
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	SW	TSB-BR-05-0' (F7I110258) Rinsate 1 (F7I070120)
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	A	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III validation.
VII.	System Performance	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D_1 = 2, 3 D_2 = 7, 8
X.	Field blanks	ND	R = 1

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

Water + Soil

1	4	RINSATE 2	W	11	1	TSB-AJ-03-10'**	S	21	1	TSB-AR-06-0'MSD	S	31	1	7255236 MB
2	3	TSB-AR-06-0'	D_1 S	12	1	TSB-BJ-06-0'**		22	2	TSB-BJ-06-10'MS		32	2	7255237
3	1	TSB-AR-06-0'-Dup	D_1	13	2	TSB-BJ-06-10'**		23	2	TSB-BJ-06-10'MSD		33	3	7256146
4	1	TSB-AR-06-10'		14	2	TSB-BJ-01-0'**		24				34	4	7257149
5	1	TSB-AJ-01-0'**		15	2	TSB-BJ-01-10'		25				35		
6	1	TSB-AJ-01-10'**		16	2	TSB-BJ-02-0'**		26				36		
7	1	TSB-AJ-02-0'**	D_2	17	2	TSB-BJ-02-10'**		27				37		
8	1	TSB-AJ-02-0'-Dup**	D_2	18	2	TSB-BR-06-0'**		28				38		
9	1	TSB-AJ-02-10'**		19	2	TSB-BR-06-10'**		29				39		
10	1	TSB-AJ-03-0'**		20	1	TSB-AR-06-0'MS		30				40		

Notes: _____

LDC #: 17590 C7
SDG #: See Cover

VALIDATION FINDINGS CHECKLIST

Page: 1 of 7
Reviewer: SVZ
2nd Reviewer:

Method: ✓ GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ___✓%D or ___%R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed 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 the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?	-		✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
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?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 175907
SDG #: Sg Cover

VALIDATION FINDINGS CHECKLIST

Reviewer: SW
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
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.	✓			
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.		✓		

LDC #: 19590 C9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

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

METHOD: [✓ GC] __ HPLC

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?
[✓ Y] N N/A Was an MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y [✓ N] N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	22/23	Gasoline	( )	( )	103 (30)	13	No qual (MS/MSD in)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 17590 C7
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

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

METHOD: GC / HPLC_____

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

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (1.0 std)	Recalculated CF (1.0 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC L	8/21/07	Gasoline	1761576	1761576	17954980	17954980	7.595	7.595
2									
3									
4									

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 #: 17590 C7
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: JV6
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

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

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	LCAL367B	9/12/07 9:17	Gasoline	1.000	1.0415	1.0415	4.2	4.2
2	LCAL378B	9/12/07 15:01			1.0218	1.0218	2.2	2.2
3	LCAL387B	9/12/07 19:47			1.0005	1.0005	0.1	0.05
4	LCAL395B	9/12/07 23:59	✓	✓	0.9506	0.9506	4.9	4.9

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 #: 17590C9
SDG #: Surface

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

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

METHOD: / GC __HPLC

The percent recoveries (%R) and relative percent differences (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 SC = Sample concentration
SA = Spike added
RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100 MS = Matrix spike MSD = Matrix spike duplicate

MS/MSD samples: 22/23

Compound	Spike Added (mg/kg)		Sample Conc. (mg/kg)	Spike Sample Concentration (mg/kg)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	1.17	1.18	0	0.314	0.985	27	27	84	83	103	103
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

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 #: 17590 C7
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

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

METHOD: ✓ GC __HPLC

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

% Recovery = 100* (SSC-SC)/SA
RPD = | LCS - LCSD | * 2/(LCS + LCSD)

Where: SSC = Spiked sample concentration
SA = Spike added
LCS = Laboratory control sample percent recovery
SC = Concentration
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 7255236 LCS/D

Compound	Spike Added (mg/kg)		Spiked Sample Concentration (mg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	1.00	1.00	0.840	0.862	84	84	86	86	2.7	2.6
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										

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

LDC #: 17590C7
SDG #: Surface Water

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: TV6
2nd reviewer: [illegible]

METHOD: X GC ___ HPLC

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: #5

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
TFT	RTX-624	0.04	0.03796	95	95	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference

LDC #: 17590C7
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: __/__ GC __ HPLC

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 within 10% of the reported results?

Concentration= $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID._____ Compound Name ND

Concentration =_____

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: _____

SAMPCALew.wpd

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 22, 2007

Matrix: Soil/Water

Parameters: Gasoline Range Organics

Validation Level: EPA Level III

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I110258

Sample Identification

TSB-BR-05-0'
TSB-BR-05-10'
TSB-BR-04-0'
TSB-BR-04-0'(FD)
TSB-BR-04-10'
TSB-BJ-03-0'
TSB-BJ-03-0'(FD)
TSB-BJ-03-10'
TSB-BJ-05-0'
TSB-BJ-05-10'
TSB-BR-01-0'
TSB-BR-01-10'
TSB-BJ-04-0'
TSB-BJ-04-10'
TSB-BR-02-0'
TSB-BR-02-10'
TSB-BR-03-0'
TSB-BR-03-10'
RINSATE 3
TSB-BR-05-0'MS
TSB-BR-05-0'MSD
TSB-BR-01-0'MS
TSB-BR-01-0'MSD

Introduction

This data review covers 22 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 8015 for Gasoline Range Organics.

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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for all compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks.

Sample "RINSATE 3" was identified as a rinsate. No gasoline range organic contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. 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 within QC limits.

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. 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 gasoline range organics were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Data Qualification Summary - SDG F7I110258

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG F7I110258

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Gasoline Range Organics - Field Blank Data Qualification Summary - SDG F7I110258

No Sample Data Qualified in this SDG

LDC #: 17590D7

SDG #: F7I110258

Laboratory: Severn Trent Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 10/16/07

Page: 1 of 1

Reviewer: JVL

2nd Reviewer:

METHOD: GC Gasoline Range Organics (EPA SW 846 Method 8015)

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
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	A	
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D_1 = 3, 4 D_2 = 6, 7
X.	Field blanks	ND	R = 19

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: Soil + Water

1	1	TSB-BR-05-0'	S	11	3	TSB-BR-01-0'	S	21	1	TSB-BR-05-0'MSD	S	31	1	7256146 MB
2	1	TSB-BR-05-10'		12	3	TSB-BR-01-10'		22	3	TSB-BR-01-0'MS	↓	32	2	7257148 MB
3	1	TSB-BR-04-0'	D_1	13	3	TSB-BJ-04-0'		23	3	TSB-BR-01-0'MSD	↓	33	3	7256149 MB
4	1	TSB-BR-04-0'(FD)	D_1	14	3	TSB-BJ-04-10'		24				34	4	7257149 MB
5	1	TSB-BR-04-10'		15	3	TSB-BR-02-0'		25				35		
6	1	TSB-BJ-03-0'	D_2	16	3	TSB-BR-02-10'		26				36		
7	1	TSB-BJ-03-0'(FD)	D_2	17	3	TSB-BR-03-0'		27				37		
8	2	TSB-BJ-03-10'		18	3	TSB-BR-03-10'	↓	28				38		
9	1	TSB-BJ-05-0'		19	4	RINSATE 3	W	29				39		
10	1	TSB-BJ-05-10'	↓	20	1	TSB-BR-05-0'MS	S	30				40		

Notes:

BRC Parcel 4A/4BSampling Event
Data Validation Reports
LDC# 17590

DRO

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 22, 2007

Matrix: Soil

Parameters: Diesel Range Organics

Validation Level: EPA Level III

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I060284

Sample Identification

TSB-AR-01-0'
TSB-AR-01-0'-Dup
TSB-AR-01-10'
TSB-AR-02-0'
TSB-AR-02-10'
TSB-AR-04-0'
TSB-AR-04-10'
TSB-AR-05-0'
TSB-AR-05-10'
TSB-AR-07-0'
TSB-AR-07-10'
TSB-AR-07-10'RE
TSB-AR-04-0'MS
TSB-AR-04-0'MSD
TSB-AR-07-10'MS
TSB-AR-07-10'MSD

Introduction

This data review covers 16 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Diesel Range Organics.

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 III.

Field duplicates are summarized in Section IX.

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 with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
TSB-AR-07-10'RE TSB-AR-07-10'MS TSB-AR-07-10'MSD	Diesel range organics	18	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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for selected compounds were less than or equal to 20.0% .

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No diesel range organic contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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-AR-07-10'	ortho-Terphenyl	9.1 (59-164)	Diesel range organics	J- (all detects) R (all non-detects)	A

b. 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 within QC limits.

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples TSB-AR-01-0' and TSB-AR-01-0'-Dup were identified as field duplicates. No diesel range organics were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Data Qualification Summary - SDG F7I060284

SDG	Sample	Compound	Flag	A or P	Reason
F7I060284	TSB-AR-07-10'RE	Diesel range organics	J- (all detects) UJ (all non-detects)	A	Technical holding times
F7I060284	TSB-AR-07-10'	Diesel range organics	J- (all detects) R (all non-detects)	A	Surrogate recovery (%R)

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Laboratory Blank Data Qualification Summary - SDG F7I060284

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Field Blank Data Qualification Summary - SDG F7I060284

No Sample Data Qualified in this SDG

LDC #: 17590A8 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/15/07
SDG #: F7I060284 Level III Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: JV
2nd Reviewer:

METHOD: GC Diesel Range Organics (EPA SW 846 Method 8015)

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: 9/05/07
IIa.	Initial calibration	A	%RSD r
IIb.	Calibration verification/ICV	A	
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D = 1, 2
X.	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: Soil

1	TSB-AR-01-0' D	11	TSB-AR-07-10'	21	7255101-MB	31	
2	TSB-AR-01-0'-Dup D	12	TSB-AR-07-10'RE	22	7266044-MB	32	
3	TSB-AR-01-10'	13	TSB-AR-04-0'MS	23		33	
4	TSB-AR-02-0'	14	TSB-AR-04-0'MSD	24		34	
5	TSB-AR-02-10'	15	TSB-AR-07-10'MS	25		35	
6	TSB-AR-04-0'	16	TSB-AR-07-10'MSD	26		36	
7	TSB-AR-04-10'	17		27		37	
8	TSB-AR-05-0'	18		28		38	
9	TSB-AR-05-10'	19		29		39	
10	TSB-AR-07-0'	20		30		40	

Notes:

LDC #: 17590 A8
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

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

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

METHOD: /GC__ HPLC

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
12, 15, 16	S	N	9/05/07	9/23/07	9/24/07	18	J-/UJ/A

TECHNICAL HOLDING TIME CRITERIA

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

EXTRACTABLES:
- Water: Extracted within 7 days, analyzed within 40 days.
- Soil: Extracted within 14 days, analyzed within 40 days.

LDC #: 17590A8
SDG #: Sa Cover

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

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

METHOD: __ GC __ HPLC

Are surrogates required by the method? Yes__/__ or No____.

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

(Y) N N/A Were surrogates spiked into all samples and blanks?

Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	11	RTX-5	H	9.1 (59-164)	J-/R/A
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene		
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Tripentyltin		
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin		
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate		
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

Laboratory Data Consultants, Inc.
Data Validation Report

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

Collection Date: September 6, 2007

LDC Report Date: October 22, 2007

Matrix: Soil/Water

Parameters: Diesel Range Organics

Validation Level: EPA Level III

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I070120

Sample Identification

TSB-AR-08-0'
TSB-AR-08-10'
TSB-AR-11-0'
TSB-AR-11-0'RE
TSB-AR-11-0'-Dup
TSB-AR-11-10'
TSB-AR-11-10'RE
TSB-AR-14-0'
TSB-AR-14-10'
TSB-AR-13-0'
TSB-AR-13-10'
TSB-AR-10-0'
TSB-AR-10-10'
TSB-AR-9-0'
TSB-AR-9-10'
TSB-AR-12-0'
TSB-AR-12-10'
TSB-AR-3-0'
TSB-AR-3-10'
RINSATE 1
TSB-AR-11-0'MS
TSB-AR-11-0'MSD
TSB-AR-10-0'MS
TSB-AR-10-0'MSD
RINSATE 1MS
RINSATE 1MSD

Introduction

This data review covers 23 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Diesel Range Organics.

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 III.

Field duplicates are summarized in Section IX.

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 with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
TSB-AR-11-0'RE	Diesel range organics	18	14	J- (all detects) UJ (all non-detects)	A
TSB-AR-11-10'RE	Diesel range organics	17	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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for selected compounds were less than or equal to 20.0% .

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No diesel range organic contaminants were found in the method blanks.

Sample "RINSATE 1" was identified as a rinsate. No gasoline range organic contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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-AR-11-0'	ortho-Terphenyl	56 (59-164)	Diesel range organics	J- (all detects) UJ (all non-detects)	A
TSB-AR-11-10'	ortho-Terphenyl	52 (59-164)	Diesel range organics	J- (all detects) UJ (all non-detects)	A
7254104MB	ortho-Terphenyl	66 (71-153)	Diesel range organics	J- (all detects) UJ (all non-detects)	P
7254401MB	ortho-Terphenyl	57 (74-147)	Diesel range organics	J- (all detects) UJ (all non-detects)	P
7267228MB	ortho-Terphenyl	66 (71-153)	Diesel range organics	J- (all detects) UJ (all non-detects)	P

b. 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 within QC limits.

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples TSB-AR-11-0' and TSB-AR-11-0'-Dup and samples TSB-AR-11-0'RE and TSB-AR-11-0'-Dup were identified as field duplicates. No diesel range organics were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Data Qualification Summary - SDG F7I070120

SDG	Sample	Compound	Flag	A or P	Reason
F7I070120	TSB-AR-11-0'RE TSB-AR-11-10'RE	Diesel range organics	J- (all detects) UJ (all non-detects)	A	Technical holding times
F7I070120	TSB-AR-11-0' TSB-AR-11-10'	Diesel range organics	J- (all detects) UJ (all non-detects)	A	Surrogate recovery (%R)

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Laboratory Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Field Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

LDC #: 17590B8 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/14/07
SDG #: F7I070120 Level III Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: SVG
2nd Reviewer:

METHOD: GC Diesel Range Organics (EPA SW 846 Method 8015)

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: 9/06/07
IIa.	Initial calibration	A	% RSD r
IIb.	Calibration verification/ICV	A	
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	A	TSB-AR-04-0', TSB-AR-07-10' (from F7I060284)
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D = 3, 5 D = 4, 5
X.	Field blanks	ND	R = 20

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: Soil + Water

1	TSB-AR-08-0'	S	T1	TSB-AR-13-10'	S	21	5	TSB-AR-11-0'MS	S	31	7255101 MB
2	TSB-AR-08-10'		12	TSB-AR-10-0'		22	5	TSB-AR-11-0'MSD		32	7254104 MB
3	TSB-AR-11-0'	D1	13	TSB-AR-10-10'		23		TSB-AR-10-0'MS		33	7254401 MB
4	5 TSB-AR-11-0'RE	D1	14	TSB-AR-9-0'		24		TSB-AR-10-0'MSD		34	7266044 MB
5	TSB-AR-11-0'-Dup	D1, D1	15	TSB-AR-9-10'		25	3	RINSATE 1MS	W	35	5 7267228 MB
6	TSB-AR-11-10'		16	TSB-AR-12-0'		26	3	RINSATE 1MSD		36	
7	4 TSB-AR-11-10'RE		17	TSB-AR-12-10'		27				37	
8	TSB-AR-14-0'		18	TSB-AR-3-0'		28				38	
9	TSB-AR-14-10'		19	TSB-AR-3-10'		29				39	
10	TSB-AR-13-0'		20	3 RINSATE 1	W	30				40	

Notes:

LDC #: 17590 B8
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

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

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

METHOD: /GC__ HPLC

Sample ID	Matrix	Preserved	Sampling Date	(Extraction date)	Analysis date	Total # of Days	Qualifier
4	S	N	9/06/07	9/24/07	9/25/07	18	J-/UJ/A
	↓	↓	↓				↓
7	↓	↓	↓	9/23/07	9/24/07	17	↓

TECHNICAL HOLDING TIME CRITERIA

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

EXTRACTABLES:
- Water: Extracted within 7 days, analyzed within 40 days.
- Soil: Extracted within 14 days, analyzed within 40 days.

LDC #: 17590 B8
SDG #: See Cover

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: JVZ
2nd Reviewer:

METHOD: / GC __ HPLC
Are surrogates required by the method? Yes / or No ____.
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Were surrogates spiked into all samples and blanks?
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ (Column)	Surrogate Compound	%R (Limits)	Qualifications
	3	RTX-5	H	56 (59-164)	J- /UJ /A
				( )	
	6			52 ( )	
				( )	
	7254104 MB			66 (71-153)	J- /UJ /P
				( )	
	7254401 MB			57 (74-147)	
				( )	
	7267228 MB			66 (71-153)	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene		
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Tripentyltin		
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin		
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate		
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

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 22, 2007

Matrix: Soil/Water

Parameters: Diesel Range Organics

Validation Level: EPA Level III & IV

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I100142

Sample Identification

RINSATE 2
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'**

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 18 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 8015 for Diesel Range Organics.

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 III.

Field duplicates are summarized in Section IX.

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.

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

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for all compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No diesel range organic contaminants were found in the method blanks.

Sample "RINSATE 2" was identified as a rinsate. No gasoline range organic contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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
7254104MB	ortho-Terphenyl	66 (71-153)	Diesel range organics	J- (all detects) UJ (all non-detects)	P
7256201MB	ortho-Terphenyl	57 (74-147)	Diesel range organics	J- (all detects) UJ (all non-detects)	P

b. 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 within QC limits.

c. Laboratory Control Samples

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

V. Target Compound Identification

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.

VI. 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.

VII. 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.

VIII. Overall Assessment of Data

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

IX. 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 diesel range organics were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Data Qualification Summary - SDG F7I100142

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

LDC #: 17590C8 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/17/07
SDG #: F7I100142 Level III/IV Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: JVL
2nd Reviewer:

METHOD: GC Diesel Range Organics (EPA SW 846 Method 8015)

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: 9/07/07
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	A	
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	A	TSB-AR-10-0 (F7I070120) Rinsate 1 TSB-BR-05-0 (F7I110258)
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	A	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III validation.
VII.	System Performance	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D_1 = 2, 3 D_2 = 7, 8
X.	Field blanks	ND	R = 1

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

Soil + Water

1	RINSATE 2 W	11	TSB-AJ-03-10'** S	21	7254401 MB	31			
2	TSB-AR-06-0' D_1 S	12	TSB-BJ-06-0'**	22	7254104	32			
3	TSB-AR-06-0'-Dup D_1	13	TSB-BJ-06-10'**	23	7256194	33			
4	TSB-AR-06-10'	14	TSB-BJ-01-0'**	24		34			
5	TSB-AJ-01-0'**	15	TSB-BJ-01-10'	25		35			
6	TSB-AJ-01-10'**	16	TSB-BJ-02-0'**	26		36			
7	TSB-AJ-02-0'** D_2	17	TSB-BJ-02-10'**	27		37			
8	TSB-AJ-02-0'-Dup** D_2	18	TSB-BR-06-0'**	28		38			
9	TSB-AJ-02-10'**	19	TSB-BR-06-10'**	29		39			
10	TSB-AJ-03-0'**	20		30		40			

Notes:

LDC #: 17590 C8
SDG #: See Cover

VALIDATION FINDINGS CHECKLIST

Page: 1 of 7
Reviewer: JVG
2nd Reviewer: [signature]

Method: ✓ GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ✓ %D or ___ %R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed 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 the QC limits?	✓	✓		
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
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?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 17590C8
SDG #: See Cover

VALIDATION FINDINGS CHECKLIST

Reviewer: JVC
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
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.	✓			
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.		✓		

LDC #: 17590C8
SDG #: See Cover

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

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

METHOD: / GC __ HPLC
Are surrogates required by the method? Yes / or No____.
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Were surrogates spiked into all samples and blanks?
Y N N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	~~Detector~~/ Column	Surrogate Compound	%R (Limits)	Qualifications
	7254104 MB	RTX-5	H	66 (71-153)	J- / UJ / P
		↓		( )	↓
	7254401 MB	↓	H	57 (74-147)	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene		
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Tripentyltin		
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin		
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate		
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

LDC #: 17590C8
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: SVB
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC ____

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

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (100 std)	Recalculated CF (100 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	9/05/07	Diesel	14538	14537.7	13869	13869	9.576	9.576
2									
3									
4									

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 #: 17590 C8
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

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

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	ECAL269	9/12/07	Diesel	1000	948.9058	948.9107	5.1	5.1
2	ECAL281	9/12/07	↓	↓	984.5028	984.5079	1.8	1.5
3								
4								

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 #: 17590 C8
SDG #: See Cover
METHOD: ✓ GC __ HPLC

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG
2nd reviewer: [illegible]

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: # 5

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
O-Terphenyl	RTX-5	25	17.4327	70	70	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 17596 C8
SDG #: Da Corr

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: JV6
2nd Reviewer:

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (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 SC = Sample concentration
SA = Spike added
RPD =(((SSCMS - SSCMSD) * 2) / (SSCMS + SSCMSD))*100 MS = Matrix spike MSD = Matrix spike duplicate

MS/MSD samples: TSB-AR-10-0 MS/MSD

Compound	Spike Added (mg/kg)		Sample Conc. (mg/kg)	Spike Sample Concentration (mg/kg)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)	85.8	85.7	U	69.9	63.3	82	82	74	74	9.8	9.9
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

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 #: 17590C8
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

Reviewer: TV
2nd Reviewer: [illegible]

METHOD: ✓ GC __HPLC

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

% Recovery = 100* (SSC-SC)/SA
RPD = | LCS - LCSD | * 2/(LCS + LCSD)

Where: SSC = Spiked sample concentration
SA = Spike added
LCS = Laboratory control sample percent recovery
SC = Concentration
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 725 6194 LCS

Compound	Spike Added (mg/kg)		Spiked Sample Concentration (mg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel (8015)	83.3	NA	64.6	NA	77	77				
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										

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

LDC #: 17590C8
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: SW
2nd Reviewer: R

METHOD: ✓ GC __ HPLC

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 within 10% of the reported results?

Concentration= $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID._____ Compound Name ND

Concentration =_____

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: _____

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 22, 2007

Matrix: Soil/Water

Parameters: Diesel Range Organics

Validation Level: EPA Level III

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I110258

Sample Identification

TSB-BR-05-0'
TSB-BR-05-10'
TSB-BR-04-0'
TSB-BR-04-0'(FD)
TSB-BR-04-10'
TSB-BJ-03-0'
TSB-BJ-03-0'(FD)
TSB-BJ-03-10'
TSB-BJ-05-0'
TSB-BJ-05-10'
TSB-BR-01-0'
TSB-BR-01-10'
TSB-BJ-04-0'
TSB-BJ-04-10'
TSB-BR-02-0'
TSB-BR-02-10'
TSB-BR-03-0'
TSB-BR-03-10'
RINSATE 3
TSB-BR-05-0'MS
TSB-BR-05-0'MSD
TSB-BR-02-0'MS
TSB-BR-02-0'MSD
RINSATE 3MS
RINSATE 3MSD

Introduction

This data review covers 22 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Diesel Range Organics.

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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for selected compounds were less than or equal to 20.0% .

A curve fit, based on the initial calibration, was established for quantitation for selected compounds. The coefficient of determination (r^2) was greater than or equal to 0.990 .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No diesel range organic contaminants were found in the method blanks.

Sample "RINSATE 3" was identified as a rinsate. No gasoline range organic contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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-03-0'	ortho-Terphenyl	38 (59-164)	Diesel range organics	J- (all detects) UJ (all non-detects)	A

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
TSB-BJ-05-0'	ortho-Terphenyl	13 (59-164)	Diesel range organics	J- (all detects) UJ (all non-detects)	A
7256201MB	ortho-Terphenyl	68 (74-147)	Diesel range organics	J- (all detects) UJ (all non-detects)	P

b. 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 within QC limits.

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. 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 diesel range organics were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Data Qualification Summary - SDG F7I110258

SDG	Sample	Compound	Flag	A or P	Reason
F7I110258	TSB-BJ-03-0' TSB-BJ-05-0'	Diesel range organics	J- (all detects) UJ (all non-detects)	A	Surrogate recovery (%R)

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Laboratory Blank Data Qualification Summary - SDG F7I110258

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Diesel Range Organics - Field Blank Data Qualification Summary - SDG F7I110258

No Sample Data Qualified in this SDG

LDC #: 17590D8
SDG #: F7I110258
Laboratory: Severn Trent Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/16/07
Page: 1 of 1
Reviewer: JVG
2nd Reviewer:

METHOD: GC Diesel Range Organics (EPA SW 846 Method 8015)

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
IIa.	Initial calibration	A	%RSD rr
IIb.	Calibration verification/ICV	A	
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D_1 = 3,4 D_2 = 6,7
X.	Field blanks	ND	R = 19

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: Soil + water

1	TSB-BR-05-0'	S	11	TSB-BR-01-0'	S	21	TSB-BR-05-0'MSD	S	31	7256194	MB
2	TSB-BR-05-10'		12	TSB-BR-01-10'		22	TSB-BR-02-0'MS		32	7262132	MB
3	TSB-BR-04-0'	D_1	13	TSB-BJ-04-0'		23	TSB-BR-02-0'MSD		33	7256201	MB
4	TSB-BR-04-0'(FD)	D_1	14	TSB-BJ-04-10'		24	RINSATE 3MS	W	34		
5	TSB-BR-04-10'		15	TSB-BR-02-0'		25	RINSATE 3MSD		35		
6	TSB-BJ-03-0'	D_2	16	TSB-BR-02-10'		26			36		
7	TSB-BJ-03-0'(FD)	D_2	17	TSB-BR-03-0'		27			37		
8	TSB-BJ-03-10'		18	TSB-BR-03-10'		28			38		
9	TSB-BJ-05-0'		19	RINSATE 3	W	29			39		
10	TSB-BJ-05-10'		20	TSB-BR-05-0'MS	S	30			40		

Notes:

LDC #: 17590 D8
SDG #: See Cover

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

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

METHOD: ✓ **GC** __ **HPLC**

Are surrogates required by the method? Yes ✓ or No ____.

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

(Y) N N/A Were surrogates spiked into all samples and blanks?

Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	6	RTX-5	H	38 (59-164)	J-/UJ/A
				( )	
	7 (10x)			DO ( )	No qual
				( )	
	9			13 ( )	J-/UJ/A
				( )	
	725620 MB			68 (74-147)	J-/UJ/P
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene		
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Tripentyltin		
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin		
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate		
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

BRC Parcel 4A/4BSampling Event
Data Validation Reports
LDC# 17590

PAHs

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 17, 2007

Matrix: Soil

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I060284

Sample Identification

TSB-AR-01-0'
TSB-AR-01-0'-Dup
TSB-AR-01-10'
TSB-AR-02-0'
TSB-AR-02-10'
TSB-AR-04-0'
TSB-AR-04-10'
TSB-AR-05-0'
TSB-AR-05-10'
TSB-AR-07-0'
TSB-AR-07-10'
TSB-AR-04-0'MS
TSB-AR-04-0'MSD

Introduction

This data review covers 13 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8310 for Polynuclear Aromatic Hydrocarbons.

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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

b. Calibration Verification

Calibration verification was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Detector	Compound	%D	Associated Samples	Flag	A or P
9/22/07 (QCAL535)	DAD	Indeno(1,2,3-cd)pyrene	17.7	TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	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 with the following exceptions:

Date	Detector	Compound	%D	Associated Samples	Flag	A or P
9/21/07 (QICV523)	DAD	Acenaphthylene Benzo(k)fluoranthene	15.9 16.9	All samples in SDG F7I060284	J- (all detects) UJ (all non-detects)	A

III. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. 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 within QC limits.

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples TSB-AR-01-0' and TSB-AR-01-0'-Dup were identified as field duplicates. No polynuclear aromatic hydrocarbons were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-AR-01-0'	TSB-AR-01-0'-Dup			
Benzo(a)anthracene	16U	55	39 (≤16)	J (all detects) UJ (all non-detects)	A

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG F7I060284

SDG	Sample	Compound	Flag	A or P	Reason
F7I060284	TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Indeno(1,2,3-cd)pyrene	J+ (all detects)	A	Continuing calibration (%D)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup TSB-AR-01-10' TSB-AR-02-0' TSB-AR-02-10' TSB-AR-04-0' TSB-AR-04-10' TSB-AR-05-0' TSB-AR-05-10' TSB-AR-07-0' TSB-AR-07-10'	Acenaphthylene Benzo(k)fluoranthene	J- (all detects) UJ (all non-detects) J- (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
F7I060284	TSB-AR-01-0' TSB-AR-01-0'-Dup	Benzo(a)anthracene	J (all detects) UJ (all non-detects)	A	Field duplicates (Difference)

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG F7I060284

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG F7I060284

No Sample Data Qualified in this SDG

LDC #: 17590A9
SDG #: F7I060284
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/15/07
Page: 1 of 1
Reviewer: SVG
2nd Reviewer:

METHOD: HPLC Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8310)

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: 9/05/07
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	SW	
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D = 1, 2
X.	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: Soil

1	TSB-AR-01-0'	11	TSB-AR-07-10'	21		31	
2	TSB-AR-01-0'-Dup	12	TSB-AR-04-0'MS	22		32	
3	TSB-AR-01-10'	13	TSB-AR-04-0'MSD	23		33	
4	TSB-AR-02-0'	14	7255145 MB	24		34	
5	TSB-AR-02-10'	15		25		35	
6	TSB-AR-04-0'	16		26		36	
7	TSB-AR-04-10'	17		27		37	
8	TSB-AR-05-0'	18		28		38	
9	TSB-AR-05-10'	19		29		39	
10	TSB-AR-07-0'	20		30		40	

Notes:

VALIDATION FINDINGS WORKSHEET

METHOD: ____GC ___✓HPLC

8310	8330	8151	8141	8141(Con't)	8021B
A. Acenaphthene	A. HMX	A. 2,4-D	A. Dichlorvos	V. Fensulfothion	V. Benzene
B. Acenaphthylene	B. RDX	B. 2,4-DB	B. Mevinphos	W. Bolstar	CC. Toluene
C. Anthracene	C. 1,3,5-Trinitrobenzene	C. 2,4,5-T	C. Demeton-O	X. EPN	EE. Ethyl Benzene
D. Benzo(a)anthracene	D. 1,3-Dinitrobenzene	D. 2,4,5-TP	D. Demeton-S	Y. Azinphos-methyl	SSS. O-Xylene
E. Benzo(a)pyrene	E. Tetryl	E. Dinoseb	E. Ethoprop	Z. Coumaphos	RRR. MP-Xylene
F. Benzo(b)fluoranthene	F. Nitrobenzene	F. Dichlorprop	F. Naled	AA. Parathion	GG. Total Xylene
G. Benzo(g,h,i)perylene	G. 2.4.6-Trinitrotoluene	G. Dicamba	G. Sulfotep	BB. Trichloronate	
H. Benzo(k)fluoranthene	H. 4-Amino-2,6-dinitrotoluene	H. Dalapon	H. Phorate	CC. Trichlorinate	
I. Chrysene	I. 2-Amino-4,6-dinitrotoluene	I. MCPP	I. Dimethoate	DD. Trifluralin	
J. Dibenz(a,h)anthracene	J. 2,4-Dinitrotolune	J. MCPA	J. Diazinon	EE. Def	
K. Fluoranthene	K. 2,6-Dinitrotoluene	K. Pentachlorophenol	K. Disulfoton	FF. Prowl	
L. Fluorene	L. 2-Nitrotoluene	L.. 2,4,5-TP (silvex)	L. Parathion-methyl	GG. Ethion	
M. Indeno(1,2,3-cd)pyrene	M. 3-Nitrotoluene	M. Silvex	M. Ronnel		
N. Naphthalene	N. 4-Nitrotoluene		N. Malathion		
O. Phenanthrene	O.		O. Chlorpyrifos		
P. Pyrene	P.		P. Fenthion		
Q.	Q		Q. Parathion-ethyl		
R.			R. Trichlornate		
S.			S. Merphos		
			T. Stirofos		
			U. Tokuthion		

Notes:_____

LSTNEW.WPD

LDC #: 17590 A 9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JVC

METHOD: __ GC / HPLC

2nd Reviewer:

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
What type of continuing calibration calculation was performed? /%D or __RPD
Y N N/A Were continuing calibration standards analyzed at the required frequencies?
Y N N/A Did the continuing calibration standards meet the %D / RPD validation criteria of ≤15.0%?
Level IV Only
Y N N/A Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Detector/ ~~Column~~	Compound	%D / RPD (Limit ≤ 15.0)	RT (limit)	Associated Samples	Qualifications
	9/21/07	Q ICV 523	DAD	B (-)	15.9	( )	All + Blk	J- / UJ / A
		(ICV)		H (-)	16.9	( )	↓	↓
						( )		
						( )		
						( )		
	9/22/07	Q CAL 535	DAD	M (+)	17.7	( )	7-11	J+ det / A
		(CCV)				( )		
						( )		
						( )		
						( )		
						( )		
						( )		
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						( )		
						( )		

LDC #: 17590 A9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

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

Compound	Concentration (ug/kg)		RPD
	1	2	
CCC	16 U	55	39 (E16 diff) J/UJ/A

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Laboratory Data Consultants, Inc.
Data Validation Report

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

Collection Date: September 6, 2007

LDC Report Date: October 17, 2007

Matrix: Soil/Water

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I070120

Sample Identification

TSB-AR-08-0'	RINSATE 1MS
TSB-AR-08-10'	RINSATE 1MSD
TSB-AR-11-0'	
TSB-AR-11-0'-Dup	
TSB-AR-11-10'	
TSB-AR-14-0'	
TSB-AR-14-10'	
TSB-AR-13-0'	
TSB-AR-13-10'	
TSB-AR-10-0'	
TSB-AR-10-10'	
TSB-AR-9-0'	
TSB-AR-9-10'	
TSB-AR-12-0'	
TSB-AR-12-10'	
TSB-AR-3-0'	
TSB-AR-3-10'	
RINSATE 1	
TSB-AR-10-0'MS	
TSB-AR-10-0'MSD	

Introduction

This data review covers 19 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8310 for Polynuclear Aromatic Hydrocarbons.

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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

b. Calibration Verification

Calibration verification was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Detector	Compound	%D	Associated Samples	Flag	A or P
9/22/07 (QCAL535)	DAD	Indeno(1,2,3-cd)pyrene	17.7	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10'	J+ (all detects)	A
9/22/07 (QCAL546)	DAD	Pyrene	18.9	TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10'	J- (all detects) UJ (all non-detects)	A

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

Date	Detector	Compound	%D	Associated Samples	Flag	A or P
9/21/07 (QICV523)	DAD	Acenaphthylene Benzo(k)fluoranthene	15.9 16.9	All samples in SDG F7I070120	J- (all detects) UJ (all non-detects)	A

III. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

Sample "RINSATE 1" was identified as a rinsate. No polynuclear aromatic hydrocarbon contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

b. Matrix Spike/Matrix Spike Duplicates

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

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. Field Duplicates

Samples TSB-AR-11-0' and TSB-AR-11-0'-Dup were identified as field duplicates. No polynuclear aromatic hydrocarbons were detected in any of the samples.

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG F7I070120

SDG	Sample	Compound	Flag	A or P	Reason
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10'	Indeno(1,2,3-cd)pyrene	J+ (all detects)	A	Continuing calibration (%D)
F7I070120	TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10'	Pyrene	J- (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
F7I070120	TSB-AR-08-0' TSB-AR-08-10' TSB-AR-11-0' TSB-AR-11-0'-Dup TSB-AR-11-10' TSB-AR-14-0' TSB-AR-14-10' TSB-AR-13-0' TSB-AR-13-10' TSB-AR-10-0' TSB-AR-10-10' TSB-AR-9-0' TSB-AR-9-10' TSB-AR-12-0' TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' RINSATE 1	Acenaphthylene Benzo(k)fluoranthene	J- (all detects) UJ (all non-detects) J- (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

LDC #: 17590B9
SDG #: F7I070120
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/16/07
Page: 1 of 1
Reviewer: JV
2nd Reviewer:

METHOD: HPLC Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8310)

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: 9/06/07
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	SW	
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	SW	TSB-AR-04-0' (from F71060284)
IVc.	Laboratory control samples	SW	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D = 3, 4
X.	Field blanks	ND	R = 18

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: Soil + Water

1	1	TSB-AR-08-0'	S	11	3	TSB-AR-10-10'	S	21	RINSATE 1MS	W	31 1	7255145 MB
2	1	TSB-AR-08-10'		12	3	TSB-AR-9-0'		22	RINSATE 1MSD		32 Y	7254407 MB
3	1	TSB-AR-11-0'	D	13	3	TSB-AR-9-10'		23			33 3	7254145 MB
4	1	TSB-AR-11-0'-Dup	D	14	3	TSB-AR-12-0'		24			34	
5	1	TSB-AR-11-10'		15	3	TSB-AR-12-10'		25			35	
6	1	TSB-AR-14-0'		16	3	TSB-AR-3-0'		26			36	
7	1	TSB-AR-14-10'		17	3	TSB-AR-3-10'		27			37	
8	1	TSB-AR-13-0'		18	Y	RINSATE 1	W	28			38	
9	1	TSB-AR-13-10'		19		TSB-AR-10-0'MS	S	29			39	
10	3	TSB-AR-10-0'		20		TSB-AR-10-0'MSD		30			40	

Notes:

VALIDATION FINDINGS WORKSHEET

METHOD: ___GC ___HPLC

8310	8330	8151	8141	8141(Con't)	8021B
A. Acenaphthene	A. HMX	A. 2,4-D	A. Dichlorvos	V. Fensulfothion	V. Benzene
B. Acenaphthylene	B. RDX	B. 2,4-DB	B. Mevinphos	W. Bolstar	CC. Toluene
C. Anthracene	C. 1,3,5-Trinitrobenzene	C. 2,4,5-T	C. Demeton-O	X. EPN	EE. Ethyl Benzene
D. Benzo(a)anthracene	D. 1,3-Dinitrobenzene	D. 2,4,5-TP	D. Demeton-S	Y. Azinphos-methyl	SSS. O-Xylene
E. Benzo(a)pyrene	E. Tetryl	E. Dinoseb	E. Ethoprop	Z. Coumaphos	RRR. MP-Xylene
F. Benzo(b)fluoranthene	F. Nitrobenzene	F. Dichlorprop	F. Naled	AA. Parathion	GG. Total Xylene
G. Benzo(g,h,i)perylene	G. 2.4.6-Trinitrotoluene	G. Dicamba	G. Sulfotep	BB. Trichloronate	
H. Benzo(k)fluoranthene	H. 4-Amino-2,6-dinitrotoluene	H. Dalapon	H. Phorate	CC. Trichlorinate	
I. Chrysene	I. 2-Amino-4,6-dinitrotoluene	I. MCPP	I. Dimethoate	DD. Trifluralin	
J. Dibenz(a,h)anthracene	J. 2,4-Dinitrotolune	J. MCPA	J. Diazinon	EE. Def	
K. Fluoranthene	K. 2,6-Dinitrotoluene	K. Pentachlorophenol	K. Disulfoton	FF. Prowl	
L. Fluorene	L. 2-Nitrotoluene	L.. 2,4,5-TP (silvex)	L. Parathion-methyl	GG. Ethion	
M. Indeno(1,2,3-cd)pyrene	M. 3-Nitrotoluene	M. Silvex	M. Ronnel		
N. Naphthalene	N. 4-Nitrotoluene		N. Malathion		
O. Phenanthrene	O.		O. Chlorpyrifos		
P. Pyrene	P.		P. Fenthion		
Q.	Q		Q. Parathion-ethyl		
R.			R. Trichlornate		
S.			S. Merphos		
			T. Stirofos		
			U. Tokuthion		

Notes:_____

LDC #: 17590 B9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: JTB

METHOD: __ GC __/HPLC

2nd Reviewer: _____

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
What type of continuing calibration calculation was performed? __/%D or __RPD

Y N N/A Were continuing calibration standards analyzed at the required frequencies?
Y N N/A Did the continuing calibration standards meet the %D / RPD validation criteria of ≤15.0%?

Level IV Only

Y N N/A Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Detector/ Column	Compound	%D / RPD (Limit ≤ 15.0)	RT (limit)	Associated Samples	Qualifications
	9/21/07	QICV 523 (ICV)	DAD	B (-)	15.9	( )	All + Blks	J- /NJ /A
				H (-)	16.9	( )	↓	↓
						( )		
						( )		
						( )		
	9/22/07	QCAL 535 (CCV)	DAD	M (+)	17.7	( )	~~1-5~~ 1-5	J+ dets /A
						( )		
						( )		
						( )		
	9/22/07	QCAL 546	DAD	P (-)	18.9	( )	6-9	J- /NJ /A
						( )		
						( )		
						( )		
						( )		
						( )		
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						( )		
						( )		
						( )		

LDC #: 17590 B9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET

Matrix Spike/Matrix Spike Duplicates

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

METHOD: __ GC ✓ HPLC

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?
[✓ Y] N N/A Was an MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y [✓ N] N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	21/22	A	( )	67 (72-105)	( )	18	No qual
		J	( )	( )	25 (20)		(MS/MSD in)
		K	( )	( )	22 (↓)	↓	
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		

LDC #: 17590B9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

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

METHOD: ___ GC ✓ HPLC

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

[✓ Y] N N/A Were a laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) analyzed for each matrix in this SDG?

Y [✓ N] N/A Were the LCS percent recoveries (%R) and relative percent differences (RPD) within the QC limits?

Level IV/D Only

Y N [✓ N/A] Was an LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	75 7254402 LCS	F	81 (83-113)	( )	( )	18, 7254402 MB	No qual
		H	77 (84-111)	( )	( )		(MS/MSD in)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

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 22, 2007

Matrix: Soil/Water

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: EPA Level III & IV

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I100142

Sample Identification

RINSATE 2
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-02-0'MS
TSB-BJ-02-0'MS
TSB-BJ-02-0'RE**

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 21 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 8310 for Polynuclear Aromatic Hydrocarbons.

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 III.

Field duplicates are summarized in Section IX.

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 Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
TSB-BJ-02-0'RE**	All TCL compounds	20	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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

b. Calibration Verification

Calibration verification was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits.

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

Date	Detector	Compound	%D	Associated Samples	Flag	A or P
9/21/07 (QICV523)	DAD	Acenaphthylene	15.9	All samples in SDG F7I100142	J- (all detects) UJ (all non-detects)	A
		Benzo(k)fluoranthene	16.9		J- (all detects) UJ (all non-detects)	

Retention time windows were evaluated and considered technically acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples on which a Level III review was performed.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

Sample "RINSATE 2" was identified as a rinsate. No polynuclear aromatic hydrocarbon contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
TSB-BJ-02-0'**	DAD	p-Terphenyl	53 (56-120)	All TCL compounds	J- (all detects) UJ (all non-detects)	A

b. 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.

c. Laboratory Control Samples

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

V. Target Compound Identification

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.

VI. 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.

VII. 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.

VIII. Overall Assessment of Data

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

IX. 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 polynuclear aromatic hydrocarbons were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-AR-06-0'	TSB-AR-06-0'-Dup			
Acenaphthene	75	140	65 (≤52)	J (all detects)	A

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-AJ-02-0'**	TSB-AJ-02-0'-Dup**			
Acenaphthene	200	51U	149 (≤51)	J (all detects) UJ (all non-detects)	A

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG F7I100142

SDG	Sample	Compound	Flag	A or P	Reason
F7I100142	TSB-BJ-02-0'RE**	All TCL compounds	J- (all detects) UJ (all non-detects)	A	Technical holding times
F7I100142	RINSATE 2 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-02-0'RE**	Acenaphthylene Benzo(k)fluoranthene	J- (all detects) UJ (all non-detects) J- (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
F7I100142	TSB-BJ-02-0'**	All TCL compounds	J- (all detects) UJ (all non-detects)	A	Surrogate recovery (%R)
F7I100142	TSB-AR-06-0' TSB-AR-06-0'-Dup	Acenaphthene	J (all detects)	A	Field duplicates (Difference)
F7I100142	TSB-AJ-02-0'** TSB-AJ-02-0'-Dup**	Acenaphthene	J (all detects) UJ (all non-detects)	A	Field duplicates (Difference)

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

No Sample Data Qualified in this SDG

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

No Sample Data Qualified in this SDG

LDC #: 17590C9 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/17/07
SDG #: F7I100142 Level III/IV Page: 1 of 1
Laboratory: Test America Reviewer: JVG
2nd Reviewer: Q

METHOD: HPLC Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8310)

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
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	SW	
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	SW	
IVc.	Laboratory control samples	SW	LCS
V.	Target compound identification	A	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III validation.
VII.	System Performance	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D_1 = 2,3 D_2 = 7,8
X.	Field blanks	ND	R = 1

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-AJ-03-10'**	21	TSB-BJ-02-0'MS	31	7254407 MB
2	TSB-AR-06-0' D	12	TSB-BJ-06-0'**	22	TSB-BJ-02-0RE**	32	7254145
3	TSB-AR-06-0'-Dup D_1	13	TSB-BJ-06-10'**	23		33	7256073
4	TSB-AR-06-10'	14	TSB-BJ-01-0'**	24		34	4270253
5	TSB-AJ-01-0'**	15	TSB-BJ-01-10'	25		35	
6	TSB-AJ-01-10'**	16	TSB-BJ-02-0'**	26		36	
7	TSB-AJ-02-0'** D_2	17	TSB-BJ-02-10'**	27		37	
8	TSB-AJ-02-0'-Dup** D_2	18	TSB-BR-06-0'**	28		38	
9	TSB-AJ-02-10'**	19	TSB-BR-06-10'**	29		39	
10	TSB-AJ-03-0'**	20	TSB-BJ-02-0'MS	30		40	

Notes:

LDC #: 17590C9
SDG #: See Cover

VALIDATION FINDINGS CHECKLIST

Page: 1 of 4
Reviewer: JTG
2nd Reviewer: [illegible]

Method: ____ GC ✓ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ✓ %D or ____ %R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 15%.0 or percent recoveries 85-115%?	✓	✓		
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed 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 the QC limits?		✓		
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?	✓			
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?	✓		•	
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?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		

LDC #: 175909
SDG #: Salmon

VALIDATION FINDINGS CHECKLIST

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

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
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.	✓			
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: ___GC ___HPLC

8310	8330	8151	8141	8141(Con't)	8021B
A. Acenaphthene	A. HMX	A. 2,4-D	A. Dichlorvos	V. Fensulfothion	V. Benzene
B. Acenaphthylene	B. RDX	B. 2,4-DB	B. Mevinphos	W. Bolstar	CC. Toluene
C. Anthracene	C. 1,3,5-Trinitrobenzene	C. 2,4,5-T	C. Demeton-O	X. EPN	EE. Ethyl Benzene
D. Benzo(a)anthracene	D. 1,3-Dinitrobenzene	D. 2,4,5-TP	D. Demeton-S	Y. Azinphos-methyl	SSS. O-Xylene
E. Benzo(a)pyrene	E. Tetryl	E. Dinoseb	E. Ethoprop	Z. Coumaphos	RRR. MP-Xylene
F. Benzo(b)fluoranthene	F. Nitrobenzene	F. Dichlorprop	F. Naled	AA. Parathion	GG. Total Xylene
G. Benzo(g,h,i)perylene	G. 2.4.6-Trinitrotoluene	G. Dicamba	G. Sulfotep	BB. Trichloronate	
H. Benzo(k)fluoranthene	H. 4-Amino-2,6-dinitrotoluene	H. Dalapon	H. Phorate	CC. Trichlorinate	
I. Chrysene	I. 2-Amino-4,6-dinitrotoluene	I. MCPP	I. Dimethoate	DD. Trifluralin	
J. Dibenz(a,h)anthracene	J. 2,4-Dinitrotolune	J. MCPA	J. Diazinon	EE. Def	
K. Fluoranthene	K. 2,6-Dinitrotoluene	K. Pentachlorophenol	K. Disulfoton	FF. Prowl	
L. Fluorene	L. 2-Nitrotoluene	L.. 2,4,5-TP (silvex)	L. Parathion-methyl	GG. Ethion	
M. Indeno(1,2,3-cd)pyrene	M. 3-Nitrotoluene	M. Silvex	M. Ronnel		
N. Naphthalene	N. 4-Nitrotoluene		N. Malathion		
O. Phenanthrene	O.		O. Chlorpyrifos		
P. Pyrene	P.		P. Fenthion		
Q.	Q		Q. Parathion-ethyl		
R.			R. Trichlornate		
S.			S. Merphos		
			T. Stirofos		
			U. Tokuthion		

Notes:_____

LDC #: 19590C9
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 / HPLC

Sample ID	Matrix	Preserved	Sampling Date	(Extraction date)	Analysis date	Total # of Days	Qualifier
~~#~~ 22	S	N	9/07/07	9/29/07	9/28/07	20	J- / NJ / A

TECHNICAL HOLDING TIME CRITERIA

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

EXTRACTABLES:
- Water: Extracted within 7 days, analyzed within 40 days.
- Soil: Extracted within 14 days, analyzed within 40 days.

LDC #: 17590 C9
SDG #: cu Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: __ GC ✓ HPLC

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

What type of continuing calibration calculation was performed? ✓ %D or __ RPD

[✓ Y] N N/A Were continuing calibration standards analyzed at the required frequencies?

Y [✓ N] N/A Did the continuing calibration standards meet the %D / RPD validation criteria of ≤15.0%?

Level IV Only

[✓ Y] N N/A Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Detector/ Column	Compound	%D / RPD (Limit ≤ 15.0)	RT (limit)	Associated Samples	Qualifications
	9/21/07	Q ICV 523	DAD	B (-)	15.9	( )	All + Blks	J-/UJ/A
	↓	(ICV)		H (-)	16.9	( )	↓	↓
						( )		
						( )		
						( )		
						( )		
						( )		
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LDC #: 17590C9
SDG #: See Cover

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

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

METHOD: __ GC _/ HPLC

Are surrogates required by the method? Yes___ or No____.

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

Y N N/A Were surrogates spiked into all samples and blanks?

Y N N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	16	DAD	Z	53 (56-120)	J- /UJ /A
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	
				( )	
				( )	
				( )	
				( )	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene	Z	p-Terphenyl
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Tripentyltin		
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin		
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate		
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

LDC #: 17590C9
SDG #: Sulver

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

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

METHOD: __ GC ✓ HPLC

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?
[✓ Y] N N/A Was an MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y [✓ N] N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	Rinsate 1 MS/MSD	A	( )	67 (72-105)	( )	None	No qual
		J	( )	( )	25 (20)	↓	↓
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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LDC #: 17570C9
SDG #: See Cover

METHOD: ___ GC ✓ HPLC

Page: 1 of 1
Reviewer: JVC
2nd Reviewer:

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

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

[✓ Y] N N/A Were a laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) analyzed for each matrix in this SDG?

Y [✓ N] N/A Were the LCS percent recoveries (%R) and relative percent differences (RPD) within the QC limits?

Level IV/D Only

[✓ Y] N N/A Was an LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	7254402 LCS	F	81 (83-113)	( )	( )	1, 7254402 MB	No qual (MS/MSD)
		H	77 (84-111)	( )	( )	↓	↓
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 17590C9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG
2nd reviewer: [illegible]

METHOD: ___ GC / HPLC

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 (ug/kg)		%RPD Limit (Diff) (≤52)	Qualification (Parent only) All Samples
	2	3		
A	75	140	65	* J dets / A

Compound	Concentration (ug/kg)		Diff ~~%RPD~~ Limit ≤57	Qualification (Parent only) All Samples
	7	8		
A	200	51 U	149	J / UJ / A

LDC #: 17590 CG
SDG #: Subset

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer: [illegible]

METHOD: GC_____HPLC ✓

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

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (1.0 std)	Recalculated CF (1.0 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	9/24/07 ICAL	9/24/07	Anthracene	458 240	458 240	74547 ✓	74547 ✓	5.476	5.476
			Pyrene	88547 ✓	88547 ✓	71759	71759	14.806	14.808
2									
3									
4									

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 #: 17590 CQ
SDG #: Sulcored

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: JVC
2nd Reviewer: R

METHOD: GC_____HPLC ✓

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

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	QCAL598	9/25/07	Pyrene	0.5000	0.5549	0.5549	11.0	11.0
			Anthracene	↓	0.5101	0.5101	2.0	2.0
2	QCAL609	9/26/07	Pyrene		0.4491	0.4491	11.2	11.2
			Anthracene		0.5066	0.5066	1.3	1.3
3	QCAL619	9/26/07	Pyrene		0.4560	0.4560	8.8	8.8
			Anthracene	↓	0.5226	0.5226	4.5	4.5
4								

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 #: 17590C9
SDG #: Sediment

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

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

METHOD: ___ GC _/_ HPLC

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: # 5

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
p-Terphenyl	DAD	25	17.5225	70	70	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 17590 C9
SDG #: Sa Cor✓

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: JV6
2nd Reviewer: [illegible]

METHOD: ___ GC _/_ HPLC

The percent recoveries (%R) and relative percent differences (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 SC = Sample concentration
SA = Spike added
RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100 MS = Matrix spike MSD = Matrix spike duplicate

MS/MSD samples: 20/21

Compound	Spike Added (ug/kg)		Sample Conc. (ug/kg)	Spike 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	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
~~Naphthalene~~ Pyrene (8310)	66.3	67.5	9	53.7	52.0	81	81	77	77	3.3	3.7
Anthracene (8310)	66.3	67.5	8	54.3	54.1	82	82	80	80	0.3	0.4
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

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 #: 17590 C9
SDG #: Surface

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

Reviewer: JC
2nd Reviewer: [illegible]

METHOD: __ GC __HPLC

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

% Recovery = 100* (SSC-SC)/SA
RPD = | LCS - LCSD | * 2/(LCS + LCSD)

Where: SSC = Spiked sample concentration
SA = Spike added
LCS = Laboratory control sample percent recovery
SC = Concentration
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 7254145 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	Recalc.
Gasoline (8015)										
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
~~Naphthalene~~ Pyrene (8310)	66.7	NA	53.1	NA	80	80				
Anthracene (8310)			55.4		83	83				
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										

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

LDC #: 14590C9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JVC
2nd Reviewer: [illegible]

METHOD: ___ GC ✓ HPLC

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 within 10% of the reported results?

Concentration= $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. # 5 Compound Name Acenaphthene

Concentration = $\frac{(90876)(1ml)(1000)}{(10850)(30.164g)(0.976)} = 284.5$

≈ 280 ug/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: _____

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 22, 2007

Matrix: Soil/Water

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F7I110258

Sample Identification

TSB-BR-05-0'
TSB-BR-05-10'
TSB-BR-04-0'
TSB-BR-04-0'(FD)
TSB-BR-04-10'
TSB-BJ-03-0'
TSB-BJ-03-0'(FD)
TSB-BJ-03-10'
TSB-BJ-05-0'
TSB-BJ-05-10'
TSB-BR-01-0'
TSB-BR-01-10'
TSB-BJ-04-0'
TSB-BJ-04-10'
TSB-BR-02-0'
TSB-BR-02-10'
TSB-BR-03-0'
TSB-BR-03-10'
RINSATE 3
TSB-BR-05-0'MS
TSB-BR-05-0'MSD
TSB-BR-02-0'MS
TSB-BR-02-0'MSD
RINSATE 3MS
RINSATE 3MSD

Introduction

This data review covers 22 soil samples and 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8310 for Polynuclear Aromatic Hydrocarbons.

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 III.

Field duplicates are summarized in Section IX.

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. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

b. Calibration Verification

Calibration verification was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Detector	Compound	%D	Associated Samples	Flag	A or P
9/22/07 (QCAL551)	DAD	Dibenz(a,h)anthracene	17.6	RINSATE 3 RINSATE 3MS RINSATE 3MSD 7256202MB	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 with the following exceptions:

Date	Detector	Compound	%D	Associated Samples	Flag	A or P
9/21/07 (QICV523)	DAD	Acenaphthylene Benzo(k)fluoranthene	15.9 16.9	All samples in SDG F7I110258	J- (all detects) UJ (all non-detects) J- (all detects) UJ (all non-detects)	A

III. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

Sample "RINSATE 3" was identified as a rinsate. No polynuclear aromatic hydrocarbon contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Surrogate Recovery

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

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

c. Laboratory Control Samples

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

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

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

IX. 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 polynuclear aromatic hydrocarbons were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)			
Benzo(b)fluoranthene	21	16U	5 (≤17)	-	-

Compound	Concentration (ug/Kg)		Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)			
Benzo(a)pyrene	19	16U	3 (≤17)	-	-
Chrysene	24	18	6 (≤17)	-	-

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG F7I110258

SDG	Sample	Compound	Flag	A or P	Reason
F7I110258	RINSATE 3	Dibenz(a,h)anthracene	J+ (all detects)	A	Continuing calibration (%D)
F7I110258	TSB-BR-05-0' TSB-BR-05-10' TSB-BR-04-0' TSB-BR-04-0'(FD) TSB-BR-04-10' TSB-BJ-03-0' TSB-BJ-03-0'(FD) TSB-BJ-03-10' TSB-BJ-05-0' TSB-BJ-05-10' TSB-BR-01-0' TSB-BR-01-10' TSB-BJ-04-0' TSB-BJ-04-10' TSB-BR-02-0' TSB-BR-02-10' TSB-BR-03-0' TSB-BR-03-10' RINSATE 3	Acenaphthylene Benzo(k)fluoranthene	J- (all detects) UJ (all non-detects) J- (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG F7I110258

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG F7I110258

No Sample Data Qualified in this SDG

LDC #: 17590D9
SDG #: F7I110258
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 10/16/07
Page: 1 of 1
Reviewer: JVG
2nd Reviewer:

METHOD: HPLC Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8310)

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
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	SW	
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	SW	
IVc.	Laboratory control samples	SW	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	*D_1 = 3, 4 D_2 = 6, 7
X.	Field blanks	ND	R = 19

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: Soil + Water

1	TSB-BR-05-0'	S	11	TSB-BR-01-0'	S	21	TSB-BR-05-0'MSD	S	31	7256073 MB
2	TSB-BR-05-10'		12	TSB-BR-01-10'		22	TSB-BR-02-0'MS		32	7256202 MB
3	TSB-BR-04-0'	D_1	13	TSB-BJ-04-0'		23	TSB-BR-02-0'MSD		33	726 2134 MB
4	TSB-BR-04-0'(FD)	D_1	14	TSB-BJ-04-10'		24	RINSATE 3MS	W	34	
5	TSB-BR-04-10'		15	TSB-BR-02-0'		25	RINSATE 3MSD		35	
6	TSB-BJ-03-0'	D_2	16	TSB-BR-02-10'		26			36	
7	TSB-BJ-03-0'(FD)	D_2	17	TSB-BR-03-0'		27			37	
8	TSB-BJ-03-10'		18	TSB-BR-03-10'		28			38	
9	TSB-BJ-05-0'		19	RINSATE 3	W	29			39	
10	TSB-BJ-05-10'		20	TSB-BR-05-0'MS	S	30			40	

Notes:

VALIDATION FINDINGS WORKSHEET

METHOD: ____GC ____HPLC

8310	8330	8151	8141	8141(Con't)	8021B
A. Acenaphthene	A. HMX	A. 2,4-D	A. Dichlorvos	V. Fensulfothion	V. Benzene
B. Acenaphthylene	B. RDX	B. 2,4-DB	B. Mevinphos	W. Bolstar	CC. Toluene
C. Anthracene	C. 1,3,5-Trinitrobenzene	C. 2,4,5-T	C. Demeton-O	X. EPN	EE. Ethyl Benzene
D. Benzo(a)anthracene	D. 1,3-Dinitrobenzene	D. 2,4,5-TP	D. Demeton-S	Y. Azinphos-methyl	SSS. O-Xylene
E. Benzo(a)pyrene	E. Tetryl	E. Dinoseb	E. Ethoprop	Z. Coumaphos	RRR. MP-Xylene
F. Benzo(b)fluoranthene	F. Nitrobenzene	F. Dichlorprop	F. Naled	AA. Parathion	GG. Total Xylene
G. Benzo(g,h,i)perylene	G. 2.4.6-Trinitrotoluene	G. Dicamba	G. Sulfotep	BB. Trichloronate	
H. Benzo(k)fluoranthene	H. 4-Amino-2,6-dinitrotoluene	H. Dalapon	H. Phorate	CC. Trichlorinate	
I. Chrysene	I. 2-Amino-4,6-dinitrotoluene	I. MCPP	I. Dimethoate	DD. Trifluralin	
J. Dibenz(a,h)anthracene	J. 2,4-Dinitrotolune	J. MCPA	J. Diazinon	EE. Def	
K. Fluoranthene	K. 2,6-Dinitrotoluene	K. Pentachlorophenol	K. Disulfoton	FF. Prowl	
L. Fluorene	L. 2-Nitrotoluene	L.. 2,4,5-TP (silvex)	L. Parathion-methyl	GG. Ethion	
M. Indeno(1,2,3-cd)pyrene	M. 3-Nitrotoluene	M. Silvex	M. Ronnel		
N. Naphthalene	N. 4-Nitrotoluene		N. Malathion		
O. Phenanthrene	O.		O. Chlorpyrifos		
P. Pyrene	P.		P. Fenthion		
Q.	Q		Q. Parathion-ethyl		
R.			R. Trichlornate		
S.			S. Merphos		
			T. Stirofos		
			U. Tokuthion		

Notes:_____

LDC #: 17590 D9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: ___ GC [✓ HPLC]

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

What type of continuing calibration calculation was performed? [✓ %D] or ___ RPD

[✓ Y] N N/A Were continuing calibration standards analyzed at the required frequencies?

Y [✓ N] N/A Did the continuing calibration standards meet the %D / RPD validation criteria of ≤15.0%?

Level ~~IV~~ Only

Y N [✓ N/A] Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	[✓ Detector] / Column	Compound	%D / RPD (Limit ≤ 15.0)	RT (limit)	Associated Samples	Qualifications
	9/21/07	Q ICV 523	DAD	B (-)	15.9	( )	All + Blks	J-/UJ/A
		(ICV)		H (-)	16.9	( )	↓	↓
						( )		
						( )		
	9/22/07	QCAL 551	DAD	J (+)	17.6	( )	19, 24, 25, 7256202MB	J+dets/A
		(CCV)				( )		
						( )		
						( )		
						( )		
						( )		
						( )		
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						( )		
						( )		
						( )		
						( )		
						( )		

LDC #: 17590D9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

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

METHOD: __ GC ✓ __ HPLC

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

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	24/25	A	70 (72-105)	71 (72-105)	( )	19	No qual (MS in)
		G	( )	( )	27 (20)		
		J	37 (40-150)	25 (40-150)	38 ( )		
		M	( )	( )	25 ( )		
		P	( )	63 (68-113)	30 ( )		
			( )	( )	( )		
			( )	( )	( )		
	22/23	A	46 (56-105)	( )	48 (30)	15	No qual (MSD in)
		B	57 (58-100)	( )	41 ( )		
		C	54 (63-100)	( )	45 ( )		
		F	56 (64-117)	( )	37 ( )		
		H	56 (63-109)	( )	40 ( )		
		G	60 (61-114)	( )	45 ( )		
		E	( )	( )	47 ( )		
		J	( )	( )	46 ( )		
		M	( )	( )	48 ( )		
		O	( )	( )	32 ( )	✓	
		P	( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 17590D9
SDG #: See Cover

METHOD: __ GC ✓ HPLC

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

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

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

[✓ Y] N N/A Were a laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) analyzed for each matrix in this SDG?

Y [✓ N] N/A Were the LCS percent recoveries (%R) and relative percent differences (RPD) within the QC limits?

Level IV/D Only

Y N [✓ N/A] Was an LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	7256202 LCS	I	79 (84-105)	( )	( )	19, 7256202 MB	No qual
		O	79 (80-110)	( )	( )	↓	(MS/MSD in)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 17596D9
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: ~~GC~~ HPLC
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 (ug/kg)		%RPD Limit_____	Qualification Parent only / All Samples
	6	7		
F	21	16 U	5 (≤ 17 Diff)	
E	19	↓	3	
I	24	18	6	

Compound	Concentration ( )		%RPD Limit _____	Qualification Parent only / All Samples

BRC Parcel 4A/4BSampling Event
Data Validation Reports
LDC# 17590

Dioxins/Dibenzofurans

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 16, 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

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.

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

LDC #: 17590A21 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/13/07
SDG #: F7I060284 Level III Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: [illegible]
2nd Reviewer: [illegible]

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	7256399MB	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

Page: 1 of 1
Reviewer:
2nd Reviewer:

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

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	Q	135 (70-130)	( )	( )	3	No qual
				( )	( )	( )		(MSD in)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 17590A1
SDG #: FT1060284

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: CW
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-/UJ/P
			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 6, 2007

LDC Report Date: October 16, 2007

Matrix: Soil/Water

Parameters: Dioxins/Dibenzofurans

Validation Level: EPA Level III

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): F7I070120

Sample Identification

TSB-AR-08-0'
TSB-AR-11-0'
TSB-AR-14-0'
TSB-AR-13-0'
TSB-AR-10-0'
TSB-AR-9-0'
TSB-AR-12-0'
TSB-AR-3-0'
RINSATE 1
TSB-AR-13-0'MS
TSB-AR-13-0'MSD

Introduction

This data review covers 10 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 with the following exceptions:

Date	Compound	%D	Associated Samples	Affected Compounds	Flag	A or P
9/25/07	^{13}C-1,2,3,4,6,7,8-HpCDF ^{13}C-OCDD	47.3 42.6	TSB-AR-14-0' TSB-AR-10-0'	1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF OCDD OCDF	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P

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 1" 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.

VIII. Regional Quality Assurance and Quality Control

Not applicable.

IX. Internal Standards

All internal standard recoveries were within QC limits.

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.

BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Data Qualification Summary - SDG F7I070120

SDG	Sample	Compound	Flag	A or P	Reason
F7I070120	TSB-AR-14-0' TSB-AR-10-0'	1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF OCDD OCDF	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P	Routine calibration (%D)

BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG F7I070120

No Sample Data Qualified in this SDG

LDC #: 17590B21 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/15/07
SDG #: F7I070120 Level III Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: Q
2nd Reviewer: L

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: 9/6/07
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Routine calibration	SW	
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	ND	R= 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:

1 1	TSB-AR-08-0'	S	11 2	TSB-AR-13-0'MSD	S	21	T6029AMB	31	W
2 2	TSB-AR-11-0'		12			22 1	T6927TMB	32	
3 3	TSB-AR-14-0'		13			23 2	T6952MB	33	
4 2	TSB-AR-13-0'		14			24		34	
5 3	TSB-AR-10-0'		15			25		35	
6 4	TSB-AR-9-0'		16			26		36	
7 4	TSB-AR-12-0'		17			27		37	
8 4	TSB-AR-3-0'		18			28		38	
9	RINSATE 1	W	19			29		39	
10 5	TSB-AR-13-0'MS	S	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 #: 11570B21
SDG #: FT107020

VALIDATION FINDINGS WORKSHEET
Routine Calibration

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

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 routine calibration was performed at the beginning and end of each 12 hour period?

Y N N/A Were all percent differences (%D) of RRFs ≤ 20% for unlabeled compounds and ≤ 30% for labeled?

Y N N/A Did all routine calibration standards meet the Ion Abundance Ratio criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Finding Ion Abundance Ratio	Associated Samples	Qualifications
	9/25/07	245E071.D 5, 22	13C-0	47.3		3.5	J+/dets/P
			13C-4	42.6			

	PCDDs	Selected Ions (m/z)	Ion Abundance Ratio
	Tetra-	M/M+2	0.65-0.89
	Penta-	M+2/M+4	1.32-1.78
	Hexa-	M+2/M+4	1.05-1.43
	Hexa-^{13}C-HxCDF (IS) only	M/M+2	0.43-0.59
	Hepta-^{13}C-HpCDF (IS) only	M/M+2	0.37-0.51
	Hepta-	M+2/M+4	0.88-1.20
	Octa-	M+2/M+4	0.76-1.02

	PCDFs	Selected Ions (m/z)	Ion Abundance Ratio
	Tetra-	M/M+2	0.65-0.89
	Penta-	M+2/M+4	1.32-1.78
	Hexa-	M+2/M+4	1.05-1.43
	Hexa-^{13}C-HxCDF (IS) only	M/M+2	0.43-0.59
	Hepta-^{13}C-HpCDF (IS) only	M/M+2	0.37-0.51
	Hepta-	M+2/M+4	0.88-1.20
	Octa-	M+2/M+4	0.76-1.02

LDC #: 17890B2/
SDG #: See cover

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
		10/11	B	( )	131 (70-130)	( )	4	No Qual
			F	139 (70-130)	( )	( )		
			G	154 ( )	( )	26 (≤25)		
			H	163 ( )	( )	30 ( )		
			I	145 ( )	( )	( )		
			J	142 ( )	132 ( )	( )		
			K	142 ( )	( )	( )		
			L	133 ( )	( )	( )		
			O	148 ( )	( )	( )		
			P	143 ( )	( )	( )		
			Q	162 ( )	( )	( )		
				( )	( )	( )		MS. MSD. LCS in
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 17590B21
SDG #: FI0701Z0

VALIDATION FINDINGS WORKSHEET
Internal Standards

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 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
		10 (MS)	D	37 (40-135)	No qual
			H	36 ( )	
			I	36 ( )	
			A	39 ( )	
			C	35 ( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	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 17, 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

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

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

LDC #: 17590C21 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/15/07
SDG #: F7I100142 Level III/IV Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: 9
2nd Reviewer: 1

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

MI 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 #: F7110014Z

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: K

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 #: 0T1100142

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 $\geq$ 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 $\geq$ 2.5?	✓			
Does the maximum intensity of each specified characteristic ion coincide within $\pm$ 2 seconds (includes labeled standards)?	✓			
For PCDF identification, was any signal (S/N $\geq$ 2.5, at $\pm$ 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 #: 17590C21
SDG #: 0FT1100142

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: A

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 #: 17590C21
SDG #: FT1100 H2

VALIDATION FINDINGS WORKSHEET
Internal Standards

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

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/UJ/P (F.Q)
				( )	
		7	J	34 ( )	
				( )	
		8	G	24 ( )	J/UJ/P (F.Q)
			H	24 ( )	B
			I	14 ( )	
				( )	
				( )	(F.G.O.P.Q.H.I)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	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 #: 17590C2
SDG #: FT1180K2

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd reviewer: [illegible]

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~~) 1	Concentration (~~PG/G~~) 2	RPD or D
H	1.1	0.43U	0.67 (≤0.43) √/U/A
K	3.4	1.4U	2 (≤1.4) √
O	6.9	2.8	85 (≤50) ~~√~~ dets/A
Q	19	4.9U	14.1 (≤4.9) √/U/A

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 17590C2
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	9/25/07	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	1.16	1.16	1.13	1.13	3.65	3.46
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	1.25	1.25	1.22	1.22	4.69	4.80
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	1.00	1.00	0.97	0.97	3.90	4.25
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	1.11	1.11	1.07	1.07	6.58	6.68
			OCDF (^{13}C-OCDD)	3.332	3.332	3.25	3.25	5.72	5.80
2	ICAL	7/10/07	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	0.954	0.954	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 #: 17590a1
SDG #: FT1001A2

VALIDATION FINDINGS WORKSHEET
Routine Calibration Results Verification

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	25520TAIDS	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	25520TAIDS	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	25520TTDS	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 #: FC1200142

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: T
2nd Reviewer: R

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: 7262319 LCS

Compound	Spike Added (PG/G)		Spiked Sample Concentration (PG/G)		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 #: 17590c2/
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?

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. = $\frac{(1383285)(4000)(\quad)}{(1730899)(\cancel{2.45}\ 3.33)(10.02)(0.976)}$

= 9.82 pg/g

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

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 16, 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 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	207 (70-130) 131 (70-130) 132 (70-130) 132 (70-130) 190 (70-130) 253 (70-130) 236 (70-130)	All water samples in SDG F7I1120258	J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects) J+ (all detects)	P

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 OCDF	J- (all detects) UJ (all non-detects) J- (all detects) UJ (all non-detects)	P
RINSATE 3	^{13}C-1,2,3,6,7,8-HxCDD ^{13}C-1,2,3,4,6,7,8-HpCDF ^{13}C-1,2,3,4,7,8-HxCDF	31 (40-135) 29 (40-135) 27 (40-135)	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

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)	-	-	-
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)	-	-	-

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-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)	-	-	-
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)	-	-	-

Isotope	Concentration (pg/g)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-BJ-03-0'	TSB-BJ-03-0'(FD)				
OCDF	650	500	26 (≤50)	-	-	-

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

LDC #: 17590D21 **VALIDATION COMPLETENESS WORKSHEET** Date: 10/15/07
SDG #: F7I110258 Level III Page: 1 of 1
Laboratory: Severn Trent Laboratories, Inc. Reviewer: Q
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=6T 80 MB	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 #: 1TS90021
SDG #: F7I100258

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: 9
2nd Reviewer: e

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 QL)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 1T590D21
SDG #: F7110258

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: Q
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 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 +ds.	J^{+}dets/P
			H	131 ( )	( )	( )	T260528MB	
			I	132 ( )	( )	( )		
			L	132 ( )	( )	( )		
			M	190 ( )	( )	( )		
			N	253 ( )	( )	( )		
			P	236 ( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 75900-21
SDG #: FT110258

VALIDATION FINDINGS WORKSHEET
Internal Standards

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-/UJ/P (4.2)
				( )	
		12	F	31 ( )	(C→E)
			G	29 ( )	(D.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

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: [illegible]
2nd Reviewer: [illegible]

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	