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

August 6, 2008

SUBJECT: BRC Tronox Parcel F, Data Validation

Dear Ms. Barajas-Albalawi

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on July 14, 2008. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 19099:

SDG #	Fraction
F8F050256, F8F110173	Volatiles, Semivolatiles, Chlorinated Pesticides, Polychlorinated Biphenyls, 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
- 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; IIIB, November 2004; Update IV, February 2007

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

Sincerely,

ERauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

5,865 Pages-CD

Attachment 1

80/20

LDC #19099 (ERM-Sacramento / BRC Tronox Parcel F)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		SVOA (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		GRO (8015)		DRO (8015)		PAHs (8310)		Dioxins (8290)		Bromide Bromine Chlorate		Chloride Chlorine Fluoride		NO_3 NO_2 O-OP_4		SO_4 (300.0)		O&G (9071B 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	F8F050256	07/14/08	08/04/08	1	3	0	3	0	6	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3						
B	F8F110173	07/14/08	08/04/08	1	6	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5						
Total	T/LR			2	9	0	8	0	11	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0	8	0	0	0	0	0	118

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

19099ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: August 6, 2008

Matrix: Soil/Water

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-20'DL
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD
TB-1 6/10/08

Introduction

This data review covers 6 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 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.

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
6/12/08	Ethanol	0.00148 (≥0.05)	All soil samples in SDG F8F110173	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
6/19/08	Iodomethane	67.71684	TB-1 6/10/08 F8F200000-125	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
5/28/08	Iodomethane	31.67513	TB-1 6/10/08 F8F200000-125	J+ (all detects)	A
5/28/08	2-Hexanone	25.04476	TB-1 6/10/08 F8F200000-125	J- (all detects) UJ (all non-detects)	A
5/23/08	Dichloromethane	29.90220	TSB-FJ-06-02-10' TSB-FJ-06-02-20' TSB-FJ-06-02-30' TSB-FR-02-02-10' TSB-FR-02-02-10'-FD F8F120000-446	J- (all detects) UJ (all non-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 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
F8F120000-446	6/12/08	Tetrachloroethene	1.5 ug/Kg	TSB-FJ-06-02-10' TSB-FJ-06-02-20' TSB-FJ-06-02-30' TSB-FR-02-02-10' TSB-FR-02-02-10'-FD

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-FJ-06-02-10'	Tetrachloroethene	1.6 ug/Kg	5.3B ug/Kg
TSB-FJ-06-02-20'	Tetrachloroethene	2.4 ug/Kg	6.4B ug/Kg
TSB-FJ-06-02-30'	Tetrachloroethene	1.7 ug/Kg	5.4U ug/Kg
TSB-FR-02-02-10'	Tetrachloroethene	1.2 ug/Kg	5.7U ug/Kg
TSB-FR-02-02-10'-FD	Tetrachloroethene	1.2 ug/Kg	5.4U ug/Kg

Sample TB-1 6/10/08 was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB-1 6/10/08	6/10/08	Chloroform	0.084 ug/L	All soil samples in SDG F8F110173

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.

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
F8F200000-125	Bromofluorobenzene	117 (79-115)	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 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 percent recoveries for some compounds and relative percent difference (RPD) for one compound in the LCS/LCSD were not within QC limits, the MS/MSD and LCS 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-FJ-06-02-20'	1,4-Dichlorobenzene-d4	181868 (187131-748522)	1,1,2,2-Tetrachloroethene 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzne 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Chlorotoluene 4-Chlorotoluene Bromobenzene Isopropylbenzene n-Butylbenzene n-Propylbenzene p-Cymene sec-Butylbenzene tert-Butylbenzene 1,3,5-Trichlorobenzene Nonanal Bromoform	J (all detects) UJ (all non-detects)	A

Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
TSB-FR-02-02-10'-FD	1,4-Dichlorobenzene-d4	168365 (187131-748522)	1,1,2,2-Tetrachloroethene 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzne 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Chlorotoluene 4-Chlorotoluene Bromobenzene Isopropylbenzene n-Butylbenzene n-Propylbenzene p-Cymene sec-Butylbenzene tert-Butylbenzene 1,3,5-Trichlorobenzene Nonanal Bromoform	J (all detects) UJ (all non-detects)	P

XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

XII. Compound Quantitation and CRQLs

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

Sample	Compound	Finding	Criteria	Flag	A or P
TSB-FJ-06-02-20'	Chloroform	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

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-FR-02-02-10' and TSB-FR-02-02-10'-FD 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)	Flag	A or P
	TSB-FR-02-02-10'	TSB-FR-02-02-10'-FD				
Tetrachloroethene	1.2	1.2	-	0 (≤5.7)	-	-

BRC Tronox Parcel F
Volatiles - Data Qualification Summary - SDG F8F110173

SDG	Sample	Compound	Flag	A or P	Reason
F8F110173	TSB-FJ-06-02-10' TSB-FJ-06-02-20' TSB-FJ-06-02-20'DL TSB-FJ-06-02-30' TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Ethanol	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
F8F110173	TB-1 6/10/08	Iodomethane	J+ (all detects)	A	Continuing calibration (%D)
F8F110173	TB-1 6/10/08	Iodomethane	J+ (all detects)	A	Continuing calibration (ICV %D)
F8F110173	TB-1 6/10/08	2-Hexanone	J- (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
F8F110173	TSB-FJ-06-02-10' TSB-FJ-06-02-20' TSB-FJ-06-02-30' TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Dichloromethane	J- (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D)
F8F110173	TSB-FJ-06-02-20'	1,1,2,2-Tetrachloroethene 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzne 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Chlorotoluene 4-Chlorotoluene Bromobenzene Isopropylbenzene n-Butylbenzene n-Propylbenzene p-Cymene sec-Butylbenzene tert-Butylbenzene 1,3,5-Trichlorobenzene Nonanal Bromoform	J (all detects) UJ (all non-detects)	A	Internal standards (area)

SDG	Sample	Compound	Flag	A or P	Reason
F8F110173	TSB-FR-02-02-10'-FD	1,1,2,2-Tetrachloroethene 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzne 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2-Chlorotoluene 4-Chlorotoluene Bromobenzene Isopropylbenzene n-Butylbenzene n-Propylbenzene p-Cymene sec-Butylbenzene tert-Butylbenzene 1,3,5-Trichlorobenzene Nonanal Bromoform	J (all detects) UJ (all non-detects)	P	Internal standards (area)
F8F110173	TSB-FJ-06-02-20'	Chloroform	J (all detects)	A	Compound quantitation and CRQLs

BRC Tronox Parcel F
Volatiles - Laboratory Blank Data Qualification Summary - SDG F8F110173

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
F8F110173	TSB-FJ-06-02-10'	Tetrachloroethene	5.3B ug/Kg	A
F8F110173	TSB-FJ-06-02-20'	Tetrachloroethene	6.4B ug/Kg	A
F8F110173	TSB-FJ-06-02-30'	Tetrachloroethene	5.4U ug/Kg	A
F8F110173	TSB-FR-02-02-10'	Tetrachloroethene	5.7U ug/Kg	A
F8F110173	TSB-FR-02-02-10'-FD	Tetrachloroethene	5.4U ug/Kg	A

BRC Tronox Parcel F
Volatiles - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC #: 19099B1
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 7/23/08
Page: 1 of 1
Reviewer: FS
2nd Reviewer: [illegible]

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: 6/10/08
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD, r^2 ≥ 0.990
IV.	Continuing calibration/ICV	SW	ICV ≤ 25
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	TSB-GJ-08-10', Rinsate-2
VIII.	Laboratory control samples	SW	LCS ID
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	SW	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 5 + 6
XVII.	Field blanks	SW	TB = 7

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-FJ-06-02-10'	11 1	F8F120000-446	21	8164446	31	
2 1	TSB-FJ-06-02-20'	12 2	F8F180000-291	22	8170291	32	
3 2	TSB-FJ-06-02-20'DL (Kony)	13 3	F8F200000-125	23	8172125	33	
4 1	TSB-FJ-06-02-30'	14 4	F8F200000-361	24	8172361	34	
5 +1	TSB-FR-02-02-10'	15		25		35	
6 +1	TSB-FR-02-02-10'-FD	16		26		36	
7 3	TB-1 6/10/08 W (4= Nonanal)	17		27		37	
8		18		28		38	
9		19		29		39	
10		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 chorlde**	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.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

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

LDC #: 19049D 1
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Reviewer: [illegible]
2nd Reviewer: [illegible]

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

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

- (Y) N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?
- (Y) N N/A Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?
- (Y) N N/A Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation?________
- (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
	6/12/08	ICALX-BRC	WWW		0.00148	All soils +	J/UJ/A
						F8 F120000-446,	
						F8 F180000-291	

INICAL.1SB

LDC #: 19099B1
SDG #: fee cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: B
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 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
+	5/28/08	LICV9881	Iodomethane	31.67513		FBF200000-12	J+/Adet
-			Z	25.04476		7	J-/UJ/A
-	6/9/08	XICV2288	dichloromethan E	29.90220		FBF120000-446, 1,2,4-6	J-/UJ/A
+	6/9/08	LCAL0317	Iodomethane	67.71684		FBF200000-12, 7	J+/Adet

CONCAL.1SB

LDC #: 17107VB1

SDG #: all cores

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JT

2nd Reviewer: S

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: 6/12/08

Conc. units: ug/Kg

Associated Samples: 1, 2, 4 - 6

Compound	Blank ID	Sample Identification								
	MBF120000 - 446	1	2	4	5	6				
~~Methylene chloride~~ AA	1.5	1.6/5.3B	2.4/6.4B	1.7/5.4U	1.2/5.7U	1.2/5.4U		- - -	-	
Acetone										
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".

SDG #: see cover

Field Blanks

Reviewer: [illegible]
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: TB Associated Samples: All soils (ND + >5x)

Compound	Blank ID	Blank ID	Sample Identification							
	7									
~~Methylene chloride~~										
~~Acetone~~										
Chloroform	0.084									
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							
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 #: 19099B)
SDG #: fee cover

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Reviewer: B
2nd Reviewer: E

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
		FSF200000-175	BFB	117 (79-115)	J+/P dil
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	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 #: 19099B1
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: m
2nd Reviewer: e

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
Soil	-446		L	124 (79-123)	( )	( )		
			Iodomethane	( )	( )	39 (20)		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
	125	Rinsate-2	Iodomethane	( )	( )	22 (20)	none	no qual
		MS/D		( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

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

LDC #: [illegible]
SDG #: pu cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: FT
2nd Reviewer: Q

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
		8172175-LCS/D	Y	293 (42-140)	( )	112 (20)	F8F200000-125,	no QUAL LCS in
			Iodomethane	166 (45-140)	181 (45-140)	( )	7,	no QUAL ~~LCS~~ MS/D in
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 19099B1
SDG #: pre coned

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: [illegible]
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 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
		2	4DCB	181868 (187131 - 748522)		J/UJ/A
		6	↓	168365 (↓)		J/UJ/P

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

Test America ERM/BRC

Volatile Internal Standards

Fluorobenzene	Chlorobenzene-d5	1,4-Dichlorobenzene-d4
1,1,1-Trichloroethane	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane
~~1,1,2-Trichloroethane~~	1,2-~~Dibromoethane~~	1,2,3-Trichlorobenzene
1,1-Dichloroethane	1,3-Dichloropropane	1,2,3-Trichloropropane
1,1-Dichloroethene	1-~~Chlorohexane~~	1,2,4-Trichlorobenzene
1,1-Dichloropropene	~~Bromoform~~	1,2,4-Trimethylbenzene
1,2-Dichloroethane	Chlorobenzene	1,2-Dichlorobenzene
1,2-Dichloropropane	Dibromochloromethane	1,2-Dibromo-3-chloropropane
2,2-Dichloropropane	Ethylbenzene	1,3,5-Trimethylbenzene
Acetone	m,p-Xylene	1,3-Dichlorobenzene
Benzene	o-Xylene	1,4-Dichlorobenzene
Bromochloromethane	Styrene	2-Chlorotoluene
Bromodichloromethane	Tetrachloroethene	4-Chlorotoluene
Bromomethane	1,1,2-Trichloroethane	Bromobenzene
Carbon tetrachloride	Toluene	~~Hexachlorobutadiene~~
Chloroethane	trans-1,3-Dichloropropene	Isopropylbenzene
Chloroform	2-Nitropropane	~~Methyl isobutyl ketone~~
Chloromethane	4-Methyl-2-pentanone	n-Butylbenzene
cis-1,2-Dichloroethene	2-Hexanone	n-Propylbenzene
cis-1,3-Dichloropropene	Dimethyl disulfide	Naphthalene
Dibromomethane	Xylenes (total)	~~p-Isopropyltoluene~~, p-cymene
Dichlorodifluoromethane		sec-Butylbenzene
Methylene chloride		tert-Butylbenzene
Methyl-tert-butyl ether		1,3,5-Trichlorobenzene
2-Butanone		Nonanal
Trichloroethene		Bromoform
~~Toluene~~		
trans-1,2-Dichloroethene		
~~trans-1,3-Dichloropropene~~		
Trichlorofluoromethane		
Vinyl chloride		
Carbon Disulfide		

Iodomethane
Acetonitrile
Vinyl Acetate
1,1,2-Trichloro-1,1,2-Trifluoroethane
Ethanol
3,3-Dimethylpentane
2,3-
2,2-
2,4-
2,2,3-Trimethylbutane
3-Ethylpentane
2-Methylhexane
3- ↓
Heptane
1,2-Dichloroethene (total)

LDC #: 19099B1
SDG #: fc cover

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and CRQLs

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

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

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

Y N N/A Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?
Y N N/A Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?

#	Date	~~Sample ID~~ compd	Finding	Associated Samples	Qualifications
		K	exceeded cal Range	2	J/A dil

Comments: See sample calculation verification worksheet for recalculations

LDC #: 19099B1
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of
Reviewer:
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)		Difference RPD
	5	6	
AA	1.2	1.2	0 ≤ 5.7

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: July 24, 2008

Matrix: Soil

Parameters: Semivolatiles

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

Sample Identification

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD

Introduction

This data review covers 5 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 with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
6/18/08	Phthalic acid	0.01422 (≥0.05)	All samples in SDG F8F110173	J (all detects) UJ (all non-detects)	A
	n-(Hydroxymethyl)phthalimide	0.04408 (≥0.05)		J (all detects) UJ (all non-detects)	

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.

The percent difference (%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
6/18/08	Phthalic acid	0.01330 (≥0.05)	All samples in SDG F8F110173	J (all detects) UJ (all non-detects)	A
	n-(Hydroxymethyl)phthalimide	0.04331 (≥0.05)		J (all detects) UJ (all non-detects)	

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 recovery (%R) was 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-FR-02-02-10' and TSB-FR-02-02-10'-FD were identified as field duplicates. No semivolatiles were detected in any of the samples.

BRC Tronox Parcel F
Semivolatiles - Data Qualification Summary - SDG F8F110173

SDG	Sample	Compound	Flag	A or P	Reason
F8F110173	TSB-FJ-06-02-10' TSB-FJ-06-02-20' TSB-FJ-06-02-30' TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Phthalic acid n-(Hydroxymethyl)phthalimide	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF)
F8F110173	TSB-FJ-06-02-10' TSB-FJ-06-02-20' TSB-FJ-06-02-30' TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Phthalic acid n-(Hydroxymethyl)phthalimide	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF)

BRC Tronox Parcel F
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Semivolatiles - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC #: 19099B2
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 7/23/08
Page: 1 of 1
Reviewer:
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: 6/10/08
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	% RSD, r^2 ≥ 0.990
IV.	Continuing calibration/ICV	SW	ICV ≤ 25
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 = 4 + 5
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-FJ-06-02-10'	11	F8F160000-439	21	8168439	31	
2	TSB-FJ-06-02-20'	12		22		32	
3	TSB-FJ-06-02-30'	13		23		33	
4	TSB-FR-02-02-10'	14		24		34	
5	TSB-FR-02-02-10'-FD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		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-Dinltrotoluene	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.
M. Isophorone	BB. 2-Nitroaniline	QQ. N-Nitrosodiphenylamine (1)**	FFF. Di-n-octylphthalate**	UUU
N. 2-Nitrophenol**	CC. Dimethylphthalate	RR. 4-Bromophenyl-phenylether	GGG. Benzo(b)fluoranthene	VVV.
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	WWW.

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

LDC #: 19099B3a
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 7/23/08
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

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: ~~6/10~~ 6/10/08
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	
IV.	Continuing calibration/ICV	A	ICV ≤ 15
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	TSB-GJ-08-10
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	NP	D = 4+5
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-FJ-06-02-10'	11	F8F160000-164	21	8168164	31	6/14
2	TSB-FJ-06-02-20'	12		22		32	
3	TSB-FJ-06-02-30'	13		23		33	
4	TSB-FR-02-02-10'	14		24		34	
5	TSB-FR-02-02-10'-FD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 19099B2
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Reviewer: D
2nd Reviewer: R

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

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

Y N N/A Did the laboratory conduct an acceptable 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?_____
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
	6/18/08	ICAL-SPEC	Phthalic Acid		0.01422	All+B/K	J/UJ/A
			N-(Hydroxymethyl) phthalimide		0.04408	↓	↓

INICAL2S

LDC #: 19099B2
SDG #: pre cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: A
2nd Reviewer: R

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

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
	6/18/08	JCAL5197	Phthalic Acid		0.01330	All + B/K	J/UJ/A
			N(Hydroxymethyl) phthalimide		0.04331	↓	↓

CONCAL.2S

LDC #: [illegible]
SDG #: pu cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: [illegible]
2nd Reviewer: [illegible]

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

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 circled)

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

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		8168439-LCS	HH	19 (54-90)	( )	( )	All + B/K	no qual MS/MSD in
				( )	( )	( )		
				( )	( )	( )	— — —	—
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: August 6, 2008

Matrix: Soil

Parameters: Chlorinated Pesticides

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

Sample Identification

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD

Introduction

This data review covers 5 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.

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 all compounds.

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.

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-FR-02-02-10' and TSB-FR-02-02-10'-FD were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

BRC Tronox Parcel F
Chlorinated Pesticides - Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC #: 19099B3a
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 8/6/08
Page: 1 of 1
Reviewer:
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: 6/10/08
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	
IV.	Continuing calibration/ICV	A	ICV ≤ 15
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 = 4 + 5
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-FJ-06-02-10'	11	F8F160000-164	21	8168164	31	
2	TSB-FJ-06-02-20'	12		22		32	
3	TSB-FJ-06-02-30'	13		23		33	
4	TSB-FR-02-02-10'	14		24		34	
5	TSB-FR-02-02-10'-FD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: July 24, 2008

Matrix: Soil

Parameters: Polychlorinated Biphenyls

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

Sample Identification

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD

Introduction

This data review covers 5 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

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.

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 multicomponent compounds was performed for the primary (quantitation) column as required by the method.

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

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.

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

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl 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-FR-02-02-10' and TSB-FR-02-02-10'-FD were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

BRC Tronox Parcel F
Polychlorinated Biphenyls - Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC #: 19099B3b
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 7/23/08
Page: 1 of 1
Reviewer: R
2nd Reviewer: 4

METHOD: GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

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: 6/10/08
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	
IV.	Continuing calibration/ICV	A	ICV ≤ 15
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	TSB-GJ-08-10'
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 = 4+5
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-FJ-06-02-10'	11	F8F160000-162	21	8/68/62	31	
2	TSB-FJ-06-02-20'	12		22		32	
3	TSB-FJ-06-02-30'	13		23		33	
4	TSB-FR-02-02-10'	14		24		34	
5	TSB-FR-02-02-10'-FD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: July 24, 2008

Matrix: Soil

Parameters: Metals

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

Sample Identification

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD
TSB-FJ-06-02-10'MS
TSB-FJ-06-02-10'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 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, 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.

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)	Iron	12.1 mg/Kg	All samples in SDG F8F110173
ICB/CCB	Antimony Thallium Tungsten Vanadium	1.3 ug/L 1.1 ug/L 1.4 ug/L 2.7 ug/L	All samples in SDG F8F110173

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-FJ-06-02-10'	Tungsten	0.56 mg/Kg	1.1U mg/Kg
TSB-FJ-06-02-20'	Thallium	0.57 mg/Kg	0.64U mg/Kg
TSB-FR-02-02-10'-FD	Tungsten	0.60 mg/Kg	1.1U mg/Kg

No field blanks were identified in this SDG.

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-FJ-06-02-10'MS/MSD (All samples in SDG F8F110173)	Antimony	50.0 (75-125)	50.0 (75-125)	-	J- (all detects) UJ (all non-detects)	A
	Barium	61.1 (75-125)	61.0 (75-125)	-		
	Copper	73.2 (75-125)	-	-		
	Magnesium	43.4 (75-125)	34.8 (75-125)	-		
	Niobium	38.8 (75-125)	39.3 (75-125)	-		
	Phosphorus	43.6 (75-125)	63.8 (75-125)	-		
	Tungsten	71.5 (75-125)	71.0 (75-125)	-		
	Zinc	-	74.8 (75-125)	-		

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-FJ-06-02-10'L	Calcium Phosphorus Titanium	13.8 (≤10) 15.6 (≤10) 19.2 (≤10)	All samples in SDG F8F110173	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 are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples TSB-FR-02-02-10' and TSB-FR-02-02-10'-FD were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-FR-02-02-10'	TSB-FR-02-02-10'-FD				
Aluminum	8620	8050	7 (≤50)	-	-	-
Arsenic	4.1	4.3	-	0.2 (≤2.3)	-	-
Barium	126	140	11 (≤50)	-	-	-
Beryllium	0.49	0.55	-	0.06 (≤0.23)	-	-
Cadmium	0.10	0.068	-	0.032 (≤0.11)	-	-
Calcium	60100	22200	92 (≤50)	-	J (all detects)	A
Chromium	11.0	10.0	-	1 (≤2.3)	-	-
Cobalt	6.9	7.3	6 (≤50)	-	-	-
Copper	15.0	14.6	3 (≤50)	-	-	-
Iron	11000	12500	13 (≤50)	-	-	-
Lead	7.2	7.5	4 (≤50)	-	-	-

Analyte	Concentration (mg/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-FR-02-02-10'	TSB-FR-02-02-10'-FD				
Magnesium	18900	12500	41 (≤50)	-	-	-
Manganese	301	290	4 (≤50)	-	J (all detects)	A
Molybdenum	0.39	0.31	-	0.08 (≤1.1)	-	-
Nickel	13.7	15.0	9 (≤50)	-	-	-
Palladium	0.64	0.41	-	0.23 (≤0.23)	-	-
Phosphorus	1200	1160	3 (≤50)	-	-	-
Potassium	1640	1540	6 (≤50)	-	-	-
Silicon	612	465	27 (≤50)	-	-	-
Silver	0.13	0.12	-	0.01 (≤0.46)	-	-
Sodium	860	911	6 (≤50)	-	-	-
Strontium	309	204	41 (≤50)	-	-	-
Tin	0.41	0.43	-	0.02 (≤0.46)	-	-
Titanium	556	530	5 (≤50)	-	-	-
Tungsten	0.57U	0.60	-	0.03 (≤1.1)	-	-
Uranium	2.1	1.5	33 (≤50)		-	-
Vanadium	30.0	38.5	25 (≤50)	-	-	-
Zinc	26.2	30.0	14 (≤50)	-	-	-
Zirconium	23.9	21.1	-	2.8 (≤22.8)	-	-
Lithium	16.7U	22.8	-	6.1 (≤114)	-	-
Sulfur	913	509	-	404 (≤1140)	-	-

Analyte	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)	Flag	A or P
	TSB-FR-02-02-10'	TSB-FR-02-02-10'-FD				
Mercury	14.6	12.3U	-	2.3 (≤38.0)	-	-

BRC Tronox Parcel F
Metals - Data Qualification Summary - SDG F8F110173

SDG	Sample	Analyte	Flag	A or P	Reason
F8F110173	TSB-FJ-06-02-10' TSB-FJ-06-02-20' TSB-FJ-06-02-30' TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Antimony Barium Copper Magnesium Niobium Phosphorus Tungsten Zinc	J- (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)
F8F110173	TSB-FJ-06-02-10' TSB-FJ-06-02-20' TSB-FJ-06-02-30' TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Calcium Phosphorus Titanium	J (all detects) J (all detects) J (all detects)	A	ICP serial dilution (%D)
F8F110173	TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Calcium	J (all detects)	A	Field duplicates (RPD)

BRC Tronox Parcel F
Metals - Laboratory Blank Data Qualification Summary - SDG F8F110173

SDG	Sample	Analyte	Modified Final Concentration	A or P
F8F110173	TSB-FJ-06-02-10'	Tungsten	1.1U mg/Kg	A
F8F110173	TSB-FJ-06-02-20'	Thallium	0.64U mg/Kg	A
F8F110173	TSB-FR-02-02-10'-FD	Tungsten	1.1U mg/Kg	A

BRC Tronox Parcel F
Metals - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC #: 19099B4
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 7/22/08
Page: 1 of 1
Reviewer: W
2nd Reviewer: Q

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: 6/10/08
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	SW	3MS/MSD
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS
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	(4,5)
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-FJ-06-02-10'	11		21		31	
2	TSB-FJ-06-02-20'	12		22		32	
3	TSB-FJ-06-02-30'	13		23		33	
4	TSB-FR-02-02-10'	14		24		34	
5	TSB-FR-02-02-10'-FD	15		25		35	
6	TSB-FJ-06-02-10'MS	16		26		36	
7	TSB-FJ-06-02-10'MSD	17		27		37	
8	PB	18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 19099B4
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: MH
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-5	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, ___ ___
MB6.7	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, ___ ___
1-5	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, ___ ___
MB6.7	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 #: 19099B4
SDG #: See Cover
METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)
Sample Concentration units, unless otherwise noted: mg/Kg

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied:
Associated Samples: All

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	2	5							
Sb			1.3											
Fe	12.1			121										
Tl			1.1	0.22		0.57 / 0.64								
W			1.4		0.56 / 1.1		0.60 / 1.1							
V			2.7											

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 #: 19099B4
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

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

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	6/7	Soil	Sb	50.0	50.0		All	J-/UJ/A
			Ba	61.1	61.0		↓	↓
			Cu	73.2				
			Mg	43.4	34.8			
			Nb	38.8	39.3			
			P	43.6	63.8			
			W	71.5	71.0			
			Zn		74.8		↓	↓

Comments: Al, Fe, Mn, Si, Sr, Ti, Ca > 4X

MSD.4S2

LDC #: 190983Y
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

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

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	Ca	13.8	All	J (all detects)/A
				P	15.6	↓	↓
				Ti	19.2	↓	↓

Comments: Ni, V < 10x MDL

LDC#: 19099B4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer:
2nd Reviewer:

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

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) 4	Concentration (mg/kg) 5	(≤50) RPD	(mg/Kg) Difference	(mg/Kg) Limits	Qualifications (Parent Only)
Aluminum	8620	8050	7			
Arsenic	4.1	4.3		0.2	(≤2.3)	
Barium	126	140	11			
Beryllium	0.49	0.55		0.06	(≤0.23)	
Cadmium	0.10	0.068		0.032	(≤0.11)	
Calcium	60100	22200	92			J det / A
Chromium	11.0	10.0		1	(≤2.3)	
Cobalt	6.9	7.3	6			
Copper	15.0	14.6	3			
Iron	11000	12500	13			
Lead	7.2	7.5	4			
Magnesium	18900	12500	41			
Manganese	301	290	4			
Molybdenum	0.39	0.31		0.08	(≤1.1)	
Nickel	13.7	15.0	9			
Palladium	0.64	0.41		0.23	(≤0.23)	
Phosphorus	1200	1160	3			
Potassium	1640	1540	6			
Silicon	612	465	27			

LDC#: 19099A4
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: V
2nd Reviewer: [illegible]

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

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) 4	Concentration (mg/kg) 5	(≤50) RPD	(mg/Kg) Difference	(mg/Kg) Limits	Qualifications (Parent Only)
Silver	0.13	0.12		0.01	(≤0.46)	
Sodium	860	911	6			
Strontium	309	204	41			
Tin	0.41	0.43		0.02	(≤0.46)	
Titanium	556	530	5			
Tungsten	0.57U	0.60		0.03	(≤1.1)	
Uranium	2.1	1.5	33			
Vanadium	30.0	38.5	25			
Zinc	26.2	30.0	14			
Zirconium	23.9	21.1		2.8	(≤22.8)	
Lithium	16.7U	22.8		6.1	(≤114)	
Sulfur	913	509		404	(≤1140)	
Mercury (ug/Kg)	14.6	12.3U		2.3	(≤38.0)	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: July 24, 2008

Matrix: Soil

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

Sample Identification

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD
TSB-FJ-06-02-10'MS
TSB-FJ-06-02-10'DUP

Introduction

This data review covers 7 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 and EPA SW 846 Method 9071B for 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	1.1 mg/L	All samples in SDG F8F110173
CCB1	Orthophosphate as P	0.284 mg/L	TSB-FJ-06-02-10'
CCB2	Orthophosphate as P	0.237 mg/L	TSB-FR-02-02-10'-FD

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

No field blanks were identified in this SDG.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

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) 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-FR-02-02-10' and TSB-FR-02-02-10'-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-FR-02-02-10'	TSB-FR-02-02-10'-FD				
Chlorate	1.2	0.57	-	0.63 (≤5.7)	-	-
Chloride	22.6	11.0	69 (≤50)	-	J (all detects)	A
Chlorine	45.3	22.0	69 (≤50)	-	J (all detects)	A
Fluoride	3.0	1.8	-	1.2 (≤1.1)	J (all detects)	A
Nitrate as N	1.5	0.65	-	0.85 (≤0.21)	J (all detects)	A
Sulfate	305	175	54 (≤50)	-	J (all detects)	A

BRC Tronox Parcel F
Wet Chemistry - Data Qualification Summary - SDG F8F110173

SDG	Sample	Analyte	Flag	A or P	Reason
F8F110177	TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Chloride Chlorine Sulfate	J (all detects) J (all detects) J (all detects)	A	Field duplicates (RPD)
F8F110177	TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Fluoride Nitrate as N	J (all detects) J (all detects)	A	Field duplicates (Difference)

BRC Tronox Parcel F
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Wet Chemistry - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC#: 19099B6
SDG#: See Cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: VN
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)
	4	5				
Chlorate	1.2	0.57		0.63	(≤5.7)	
Chloride	22.6	11.0	69			J det / A
Chlorine	45.3	22.0	69			J det / A
Fluoride	3.0	1.8		1.2	(≤1.1)	J det / A
Nitrate as N	1.5	0.65		0.85	(≤0.21)	J det / A
Sulfate	305	175	54			J det / A

LDC #: 19099B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/27/08
SDG #: F8F110173 Level III Page: 1 of 1
Laboratory: Test America Reviewer: W
2nd Reviewer: [illegible]

METHOD: (Analyte) Bromide, Bromine, Chlorate, Chloride, Chorine, Fluoride, Nitrate, Nitrite, Orthophosphate-P, Sulfate (EPA Method 300.0), O & G (EPA SW846 Method 9071B)

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: 6/10/08
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IV	Matrix Spike/Matrix Spike Duplicates	A	3 MS/Dup
V	Duplicates	A	
VI.	Laboratory control samples	A	Lcs
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	(4,5)
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 Soil

1	TSB-FJ-06-02-10'	11		21		31	
2	TSB-FJ-06-02-20'	12		22		32	
3	TSB-FJ-06-02-30'	13		23		33	
4	TSB-FR-02-02-10'	14		24		34	
5	TSB-FR-02-02-10'-FD	15		25		35	
6	TSB-FJ-06-02-10'MS	16		26		36	
7	TSB-FJ-06-02-10'DUP	17		27		37	
8	MB	18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 19099B6
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: [signature]
2nd reviewer: [signature]

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1-5	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
6-9	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
		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 #: 19099B6
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: A11, CCB1: 1 CCB2: 5 (All ND)

	Analyte	Blank ID	Maximum ICB/CCB	Blank Action Limit	Sample Identification								
		MB	mg/L										
	o-PO4-P	1-1											
CCB1	o-PO4-P		0.284										
CCB2	o-PO4-P		0.237										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the methoc blank concentration were qualified as not detected, "U".

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: July 24, 2008

Matrix: Soil

Parameters: Gasoline Range Organics

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

Sample Identification

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD
TSB-FJ-06-02-10'MS
TSB-FJ-06-02-10'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 8015B 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.

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 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 differences (%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) 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-FR-02-02-10' and TSB-FR-02-02-10'-FD were identified as field duplicates. No gasoline range organics were detected in any of the samples.

BRC Tronox Parcel F
Gasoline Range Organics - Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Gasoline Range Organics - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC #: 19099B7
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 7/23/08
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Gasoline Range Organics (EPA SW846 Method 8015B)

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: 6/10/08
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	A	ICV ≤ 15
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS 10
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 = 4 & 5
X.	Field blanks	N	

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

Validated Samples: SOIL

1	TSB-FJ-06-02-10'	11	F8F130000-267	21	8165267	31	
2	TSB-FJ-06-02-20'	12		22		32	
3	TSB-FJ-06-02-30'	13		23		33	
4	TSB-FR-02-02-10'	14		24		34	
5	TSB-FR-02-02-10'-FD	15		25		35	
6	TSB-FJ-06-02-10'MS	16		26		36	
7	TSB-FJ-06-02-10'MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: July 24, 2008

Matrix: Soil

Parameters: Diesel Range Organics

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

Sample Identification

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD

Introduction

This data review covers 5 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B 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.

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 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 differences (%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.

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-FR-02-02-10' and TSB-FR-02-02-10'-FD were identified as field duplicates. No diesel range organics were detected in any of the samples.

BRC Tronox Parcel F
Diesel Range Organics - Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Diesel Range Organics - Laboratory Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Diesel Range Organics - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC #: 19099B8
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 7/23/08
Page: 1 of 1
Reviewer: B
2nd Reviewer: L

METHOD: GC Diesel Range Organics (EPA SW846 Method 8015B)

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: 6/10/08
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	A	ICV ≤ 15
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	TSB-GJ-08-10 , TSB-CJ-09-0'
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 = 4+5
X.	Field blanks	N	

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

Validated Samples: SOIL

1 1	TSB-FJ-06-02-10'	11	F8F180000-312	21 1	8170312	31	
2 2	TSB-FJ-06-02-20'	12	F8F130000-291	22 2	816529 1	32	
3 2	TSB-FJ-06-02-30'	13		23		33	
4 2	TSB-FR-02-02-10'	14		24		34	
5 2	TSB-FR-02-02-10'-FD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: July 24, 2008

Matrix: Soil

Parameters: Polynuclear Aromatic Hydrocarbons

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

Sample Identification

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD

Introduction

This data review covers 5 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.

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

Date	Detector	Compound	%D	Associated Samples	Flag	A or P
6/4/08	Not specified	Benzo(k)fluoranthene	16.6	All samples in SDG F8F110173	J+ (all 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-FR-02-02-10' and TSB-FR-02-02-10'-FD were identified as field duplicates. No polynuclear aromatic hydrocarbons were detected in any of the samples.

BRC Tronox Parcel F
Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG F8F110173

SDG	Sample	Compound	Flag	A or P	Reason
F8F110173	TSB-FJ-06-02-10' TSB-FJ-06-02-20' TSB-FJ-06-02-30' TSB-FR-02-02-10' TSB-FR-02-02-10'-FD	Benzo(k)fluoranthene	J+ (all detects)	A	Continuing calibration (ICV %D)

BRC Tronox Parcel F
Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC #: 19099B9
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 7/23/08
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC 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: 6/10/08
IIa.	Initial calibration	A	
IIb.	Calibration verification/ICV	SW	ICV ≤ 15
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	TSB-GJ-08-10'
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	NP	D = 4-5
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-FJ-06-02-10'	11	F8F160000-158	21	8168158	31	
2	TSB-FJ-06-02-20'	12		22		32	
3	TSB-FJ-06-02-30'	13		23		33	
4	TSB-FR-02-02-10'	14		24		34	
5	TSB-FR-02-02-10'-FD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		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	HH. Tetrachlorvinphos	
N. Naphthalene	N. 4-Nitrotoluene		N. Malathion	II. Sulprofos	
O. Phenanthrene	O.		O. Chlorpyrifos		
P. Pyrene	P.		P. Fenthion		
Q.	Q		Q. Parathion-ethyl		
R.			R. Trichloronate		
S.			S. Merphos		
			T. Stirofos		
			U. Tokuthion		

Notes:_____

LDC #: 19099B7
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

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
+	6/4/08	Q ICV768	not specified	H	16.6	( )	All + Blk	J+/A det
						( )		
						( )		
						( )		
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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: BRC Tronox Parcel F

Collection Date: June 10, 2008

LDC Report Date: July 23, 2008

Matrix: Soil

Parameters: Dioxins/Dibenzofurans

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): F8F110173

Sample Identification

TSB-FJ-06-02-10'
TSB-FJ-06-02-20'
TSB-FJ-06-02-30'
TSB-FR-02-02-10'
TSB-FR-02-02-10'-FD

Introduction

This data review covers 5 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.

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

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
8170493LCS	1,2,3,7,8,9-HxCDD OCDD	137 (71-129) 154 (74-144)	TSB-FJ-06-02-20' 8170493MB	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-FJ-06-02-20'	^{13}C-1,2,3,4,6,7,8-HpCDD ^{13}C-OCDD ^{13}C-1,2,3,4,6,7,8-HpCDF	27 (40-135) 15 (40-135) 22 (40-135)	1,2,3,4,6,7,8-HpCDD OCDD OCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF	J (all detects) UJ (all non-detects)	P
TSB-FR-02-02-10'	^{13}C-1,2,3,6,7,8-HxCDD ^{13}C-1,2,3,4,6,7,8-HpCDD ^{13}C-OCDD ^{13}C-1,2,3,4,7,8-HxCDF ^{13}C-1,2,3,4,6,7,8-HpCDF	30 (40-135) 20 (40-135) 13 (40-135) 28 (40-135) 18 (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-HpCDD OCDD OCDF 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 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF	J (all detects) UJ (all non-detects)	P
8171606MB	^{13}C-1,2,3,4,7,8-HxCDF	38 (40-135)	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 are summarized at the end of the report if data has been qualified.

XIV. Field Duplicates

Samples TSB-FR-02-02-10' and TSB-FR-02-02-10'-FD were identified as field duplicates. No polychlorinated dioxins/dibenzofurans were detected in any of the samples.

BRC Tronox Parcel F
Dioxins/Dibenzofurans - Data Qualification Summary - SDG F8F110173

SDG	Sample	Compound	Flag	A or P	Reason
F8F110173	TSB-FJ-06-02-20'	1,2,3,7,8,9-HxCDD OCDD	J+ (all detects) J+ (all detects)	P	Laboratory control samples (%R)
F8F110173	TSB-FJ-06-02-20'	1,2,3,4,6,7,8-HpCDD OCDD OCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF	J (all detects) UJ (all non-detects)	P	Internal standards (%R)
F8F110173	TSB-FR-02-02-10'	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-HpCDD OCDD OCDF 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 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF	J (all detects) UJ (all non-detects)	P	Internal standards (%R)

BRC Tronox Parcel F
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

BRC Tronox Parcel F
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG F8F110173

No Sample Data Qualified in this SDG

LDC #: 19099B21
SDG #: F8F110173
Laboratory: Test America

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 7/19/08
Page: 1 of 1
Reviewer: R
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: 6/10/08
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Routine calibration/ICV	A	
V.	Blanks	A	
VI.	Matrix spike/Matrix spike duplicates	N	client specified
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	ND	D = 4+5
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 2	TSB-FJ-06-02-10'	11 1	8170493MB	21		31	
2 1	TSB-FJ-06-02-20'	12 2	8171606MB	22		32	
3 2	TSB-FJ-06-02-30'	13 3	8184461MB	23		33	
4 3	TSB-FR-02-02-10'	14		24		34	
5 2	TSB-FR-02-02-10'-FD	15		25		35	
6		16		26		36	
7		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 #: 19099B21
SDG #: F8F110173

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: ✓
2nd Reviewer: ✓

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

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

#	Date	Lab ID/Reference	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		8170493LCS	E	137 (71-129)	( )	( )	2, 8170493MB	J dets /P
			G	154 (74-144)	( )	( )		↓
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC #: 19099B21
SDG #: F8F110173

VALIDATION FINDINGS WORKSHEET
Internal Standards

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
		2	H	27 (40-135)	J/UJ/P (F, ~~X~~)
			I	15 ( )	(G, Q)
			G	32 ( )	(O, P, ~~X~~)
				( )	
				( )	
		4	F	30 ( )	(C-E, ~~X~~)
			H	20 ( )	~~(K-N, X)~~
			I	13 ( )	
			E	28 ( )	(K-N, ~~X~~)
			G	18 ( )	
				( )	
		8171606 MB	E	38 (V)	V
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	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-1,2,3,4,7,8-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		