

#### LABORATORY DATA CONSULTANTS, INC.

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October 22, 2007

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

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

Dear Ms. Barajas-Albalawi

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on October 5, 2007. Attachment 1 is a summary of the samples that were reviewed for each analysis.

#### LDC Project # 17561:

 SDG #
 Fraction

 IQI0476, IQI0543,
 2,2'-/4,4'-Dichlorobenzil, Chlorite & Hexavalent Chromium

 IQI0614, IQI0615,
 2,2'-/4,4'-Dichlorobenzil, Chlorite & Hexavalent Chromium

 IQI0760, IQI0951,
 IQI1087, IQI1139

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

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

Sincerely,

Erlinda T. Rauto Operations Manager/Senior Chemist

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### BRC Parcel 4A/4B Sampling Event Data Validation Reports LDC# 17561

2,2'-/4,4'-Dichlorobenzil

#### LDC Report# 17561A2b

# Laboratory Data Consultants, Inc. Data Validation Report

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

September 6, 2007

LDC Report Date: October 17, 2007

Matrix: Water

Parameters: 2,2'-/4,4'-Dichlorobenzil

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): IQI0476

Sample Identification

**Collection Date:** 

Rinsate 1

#### Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C for 2,2'-/4,4'-Dichlorobenzil.

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 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds were within validation criteria.

#### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0%.

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

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

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No 2,2'-/4,4'-Dichlorobenzil was found in the method blanks.

Sample "Rinsate 1" was identified as a rinsate. No 2,2'-/4,4'-Dichlorobenzil was found in this blank.

#### VI. Surrogate Spikes

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

#### VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there was insufficient sample volume for analysis of the matrix spike and matrix spike duplicate.

#### VIII. Laboratory Control Samples (LCS)

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

#### 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**

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

#### XVI. Field Duplicates

No field duplicates were identified in this SDG.

#### BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Data Qualification Summary - SDG IQI0476

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event

2,2'-/4,4'-Dichlorobenzil - Laboratory Blank Data Qualification Summary - SDG IQI0476

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Field Blank Data Qualification Summary - SDG IQI0476

No Sample Data Qualified in this SDG

#### VALIDATION COMPLETENESS WORKSHEET Level III

Date Page: Reviewer: 2nd Reviewer:

SDG #: IQI0476 Laboratory: Test America

LDC #: 17561A2b

METHOD: GC/MS 2,2'-/4,4'-Dichlrobenzil (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
١.	Technical holding times	A	Sampling dates: 9/6/07
11.	GC/MS Instrument performance check	Å	
111.	Initial calibration	A	Nocce X spec
IV.	Continuing calibration / CV	A	Ľ l
<b>V</b> .	/ Blanks	$\mathbf{A}$	
VI.	Surrogate spikes	Å	
VII.	Matrix spike/Matrix spike duplicates	N	insutticient somple
VIII.	Laboratory control samples	A	2C5 7
IX.	Regional Quality Assurance and Quality Control	N	
<b>X</b> .	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	N	
XVII.	Field blanks	ΝÞ	R=1

Note:

A = Acceptable N = Not provided/applicable SW = See worksheet

ND = No compounds detected R = Rinsate FB = Field blank

D = Duplicate TB = Trip blank EB = Equipment blank

Validated Samples:

1	Rinsate 1	11	TI1061-B4	21	31	
2		12	Y · · · ·	22	32	
3		13		23	33	
4		14		24	34	
5		15		25	35	
6		16		26	36	
7		17		27	37	
8		18		28	38	
9		19		29	39	
10		20		30	40	

#### LDC Report# 17561B2b

# Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
Collection Date:	September 5, 2007
LDC Report Date:	October 17, 2007
Matrix:	Soil
Parameters:	2,2'-/4,4'-Dichlorobenzil
Validation Level:	EPA Level III
Laboratory:	TestAmerica, Inc.

#### Sample Delivery Group (SDG): IQI0543

#### Sample Identification

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

#### Introduction

This data review covers 13 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C for 2,2'-/4,4'-Dichlorobenzil.

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 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds were within validation criteria.

#### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0%.

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

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

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No 2,2'-/4,4'-Dichlorobenzil was 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. 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

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

#### XVI. Field Duplicates

Samples TSB-AR-01-0' and TSB-AR-01-0'-DUP were identified as field duplicates. No 2,2'-/4,4'-Dichlorobenzil was detected in any of the samples.

#### BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Data Qualification Summary - SDG IQI0543

No Sample Data Qualified in this SDG

**BRC Parcel 4A/4B Sampling Event** 

2,2'-/4,4'-Dichlorobenzil - Laboratory Blank Data Qualification Summary - SDG IQI0543

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Field Blank Data Qualification Summary - SDG IQI0543

No Sample Data Qualified in this SDG

# VALIDATION COMPLETENESS WORKSHEET

Level III

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10/15/07
of Y
14

SDG #: IQI0543 Laboratory: Test America

LDC #: 17561B2b

#### **METHOD:** GC/MS 2,2'-/4,4'-Dichlrobenzil (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
<u> </u>	Technical holding times	$\mathbf{A}$	Sampling dates: 9/5/07
11.	GC/MS Instrument performance check	A	
111.	Initial calibration	Å	NO CCC & SPEC
IV.	Continuing calibration	A	
<b>v</b> .	Blanks	$\mathbf{A}$	
VI.	Surrogate spikes	<b>₽</b>	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	109
IX.	Regional Quality Assurance and Quality Control	N	
<b>X</b> .	Internal standards	$\mathbf{A}$	
<u>XI.</u>	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	NO	D=1+2.
XVII.	Field blanks	Ν	

Note:

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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:

<u>#444</u>							
1	TSB-AR-01-0'	11	TSB-AR-07-10'	21	TI11052-B4	β1	
2	TSB-AR-01-0'-DUP	12	TSB-AR-04-0'MS	22		32	
3	TSB-AR-01-10'	13	TSB-AR-04-0'MSD	23		33	
4	TSB-AR-02-0'	14		24		34	
5	TSB-AR-02-10'	15		25		35	
6	TSB-AR-04-0'	16		26		36	
7	TSB-AR-04-10'	17		27		37	
8	TSB-AR-05-0'	18		28		38	
9	TSB-AR-05-10'	19		29		39	
10	TSB-AR-07-0'	20		30		40	

#### LDC Report# 17561C2b

# Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
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Collection Date: September 7, 2007

LDC Report Date: October 17, 2007

Matrix: Water

Parameters: 2,2'-/4,4'-Dichlorobenzil

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): IQI0614

Sample Identification

Rinsate 2

#### Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C for 2,2'-/4,4'-Dichlorobenzil.

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 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds were within validation criteria.

#### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0%.

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

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

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No 2,2'-/4,4'-Dichlorobenzil was found in the method blanks.

Sample "Rinsate 2" was identified as a rinsate. No 2,2'-/4,4'-Dichlorobenzil was found in this blank.

#### VI. Surrogate Spikes

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

#### VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there was insufficient sample volume for analysis of the matrix spike and matrix spike duplicate.

#### VIII. Laboratory Control Samples (LCS)

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

#### 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**

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

#### XVI. Field Duplicates

No field duplicates were identified in this SDG.

#### BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Data Qualification Summary - SDG IQI0614

No Sample Data Qualified in this SDG

**BRC Parcel 4A/4B Sampling Event** 

2,2'-/4,4'-Dichlorobenzil - Laboratory Blank Data Qualification Summary - SDG IQI0614

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Field Blank Data Qualification Summary - SDG IQI0614

No Sample Data Qualified in this SDG

### VALIDATION COMPLETENESS WORKSHEET

Level III

Date Page: Reviewer: 2nd Reviewer:

METHOD: GC/MS 2,2'-/4,4'-Dichlrobenzil (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	4	Sampling dates: 9/7/07
II.	GC/MS Instrument performance check	4	
HI.	Initial calibration	A	no ccc & spec
IV.	Continuing calibration / KEV	4	4
V.	Blanks	A	
VI.	Surrogate spikes	4	
VII.	Matrix spike/Matrix spike duplicates	Ň	insufficient sample
VIII.	Laboratory control samples	$\mathbf{A}$	LCSD
IX.	Regional Quality Assurance and Quality Control	N	
<b>X</b> .	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	$\mathbf{A}$	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	2-1

Note:

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

EB = Equipment blank

Validated Samples:

1	RINSATE 2 W	11	TI 11/07-Bac)	21	31	
2		12		22	32	
3		13		23	33	
4		14		24	34	
5		15		25	35	
6		16		26	36	
7		17		27	 37	
8		18		28	38	
9		19		29	39	
10		20		30	 40	

LDC #: <u>17561C2b</u> SDG #: IQI0614

Laboratory: Test America

#### LDC Report# 17561D2b

## Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
Collection Date:	September 6, 2007
LDC Report Date:	October 17, 2007
Matrix:	Soil
Parameters:	2,2'-/4,4'-Dichlorobenzil
Validation Level:	EPA Level III & IV
Laboratory:	TestAmerica, Inc.

Sample Delivery Group (SDG): IQI0615

#### Sample Identification

TSB-AR-08-0'\*\* TSB-AR-08-10'\*\* TSB-AR-11-0'\*\* TSB-AR-11-0'-DUP\*\* TSB-AR-11-10'\*\* TSB-AR-14-0'\*\* TSB-AR-14-10'\*\* TSB-AR-13-0'\*\* TSB-AR-13-10'\*\* TSB-AR-10-0'\*\* TSB-AR-10-10'\*\* TSB-AR-9-0'\*\* TSB-AR-9-10'\*\* TSB-AR-12-0'\*\* TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' TSB-AR-13-0'MS TSB-AR-13-0'MSD

\*\*Indicates sample underwent EPA Level IV review

#### Introduction

This data review covers 19 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C for 2,2'-/4,4'-Dichlorobenzil.

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

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

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

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

The following are definitions of the data qualifiers:

- J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.
- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

#### I. Technical Holding Times

All technical holding time requirements were met.

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

#### **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

#### III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds were within validation criteria.

#### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0%.

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

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

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No 2,2'-/4,4'-Dichlorobenzil was found in the method blanks.

Sample "Rinsate 1" (from SDG IQI0476) was identified as a rinsate. No 2,2'-/4,4'-Dichlorobenzil was found in this blank.

#### VI. Surrogate Spikes

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

#### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Laboratory Control Samples (LCS)

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

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

#### X. Internal Standards

All internal standard areas and retention times were within QC limits for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

#### XI. Target Compound Identifications

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

#### XII. Compound Quantitation and CRQLs

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

#### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

#### XIV. System Performance

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

#### XV. Overall Assessment

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

#### XVI. Field Duplicates

Samples TSB-AR-11-0'\*\* and TSB-AR-11-0'-DUP\*\* were identified as field duplicates. No 2,2'-/4,4'-Dichlorobenzil was detected in any of the samples.

#### BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Data Qualification Summary - SDG IQI0615

No Sample Data Qualified in this SDG

**BRC Parcel 4A/4B Sampling Event** 

2,2'-/4,4'-Dichlorobenzil - Laboratory Blank Data Qualification Summary - SDG IQI0615

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Field Blank Data Qualification Summary - SDG IQI0615

No Sample Data Qualified in this SDG

#### VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Page: Reviewer: 2nd Reviewer

METHOD: GC/MS 2,2'-/4,4'-Dichlrobenzil (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
1.	Technical holding times	A	Sampling dates: 9/6/07
<u> </u>	GC/MS Instrument performance check	$\mathbf{A}$	
111.	Initial calibration	A	NO CCC & SPEC
IV.	Continuing calibration	A-	
V.	Blanks	A	
VI.	Surrogate spikes	$\mathbf{A}$	
VII.	Matrix spike/Matrix spike duplicates	$ \rightarrow $	
VIII.	Laboratory control samples	$ \rightarrow $	Les D
IX.	Regional Quality Assurance and Quality Control	N	
<b>X</b> .	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D=3+4
XVII.	Field blanks	NO	Rinsate 1 (18/0476)

Note:

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

Validated Samples: \*\* Indicates sample underwent Level IV validation

لللنسكي ا	2017					
11	TSB-AR-08-0'**	11	TSB-AR-10-10'**	/ <sub>21</sub> /	TI10046-B-41	31
د 2	TSB-AR-08-10'**	12	TSB-AR-9-0'**	/ 22	TI10062-BAC	32
31	TSB-AR-11-0'**	13	TSB-AR-9-10'**	23	1	33
4	TSB-AR-11-0'-DUP**	14	TSB-AR-12-0'**	24		34
5	TSB-AR-11-10'**	15	TSB-AR-12-10'	25		35
6	TSB-AR-14-0'**	/ 16	TSB-AR-3-0'	26		36
7	TSB-AR-14-10'**	17	TSB-AR-3-10'	27		37
8	TSB-AR-13-0'**	/ 18	TSB-AR-13-0'MS	28		38
9	TSB-AR-13-10'**	19	TSB-AR-13-0'MSD	29		39
10	TSB-AR-10-0'**	/ 20		30		40

LDC #: <u>17561D2b</u> SDG #: IQI0615

Laboratory: Test America

LDC #: 175610-b SDG #: 1210615

#### VALIDATION FINDINGS CHECKLIST

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#### Method: Semivolatiles (EPA SW 846 Method 8270C)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	$\left \right $			
Cooler temperature criteria was met.	1			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	(			
Were all samples analyzed within the 12 hour clock criteria?				
III. Initial calibration				And a subsection of the second s
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?			/	
Was a curve fit used for evaluation?				
Did the initial calibration meet the curve fit acceptance criteria of $\geq 0.990$ ?			/	
Were all percent relative standard deviations (%RSD) $\leq$ 30% and relative response factors (RRF) $\geq$ 0.05?	/			
IV. Continuing calibration		02.92		
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?		<b>-</b>		
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?			/	
Were all percent differences (%D) $\leq$ 25% and relative response factors (RRF) $\geq$ 0.05?	/			
V. Blanks			e	
Was a method blank associated with every sample in this SDG?				
Was a method blank analyzed for each matrix and concentration?				
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.				
VI. Surrogate spikes				
Were all surrogate %R within QC limits?				
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			/	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			/	
VII. Mainx spike/Mainx spike deplicates				Carlor Carlorated South
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	~			
Was a MS/MSD analyzed every 20 samples of each matrix?	$\bigwedge$			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	1			
VIII. Laboratory control samples	1			
Was an LCS analyzed for this SDG?	/ ]	Ī	I	

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Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	4			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
IX. Regional Quality Assurance and Quality Control			1,944 A	
Were performance evaluation (PE) samples performed?			<u> </u>	
Were the performance evaluation (PE) samples within the acceptance limits?				
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	$\langle \rangle$			
Were retention times within ± 30 seconds from the associated calibration standard?	/			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	$\langle$			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	1			
Were chromatogram peaks verified and accounted for?				
XII. Compound quantitation/CRQLs			÷.,	
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	$\left( \right)$			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Tentatively identified compounds (TICs)				and the second
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			$\langle$	
Were relative intensities of the major ions within $\pm$ 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		1		
XIV. System performance				
System performance was found to be acceptable.	$\land$			
XV. Overall assessment of data + 2.5 + 2.4 + 2.5 + 2.4				
Overall assessment of data was found to be acceptable.				
XVI. Fleid dupikates				
Field duplicate pairs were identified in this SDG.	$\land$			
Target compounds were detected in the field duplicates.		7		
XVII. Field blanks				
Field blanks were identified in this SDG.	7	Ţ	/	
Target compounds were detected in the field blanks.				

VALIDATION FINDINGS WORKSHEET

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

A. Phenoi**	P. Bis(2-chloroethoxy)methane	EE. 2,6-Dinitrotoluene	TT. Pentachiorophenol+*	III. Benzo(a)pyrene**
B. Bis (2-chioroethyl) 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**	W. 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. Aniiine
G. 2-Methylphenol	V. 4-Chloro-3-methylphenol**	KK. 2,4-Dinitrotoluene	ZZ. Pyrene	000. 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	00. 4-Nitroaniline	DDD. Chrysene	SSS. Benzidine
L. Nitrobenzene	AA. 2-Chioronaphthalene	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	ww.
O. 2,4-Dimethylphenol	DD. Acenaphthylene	SS. Hexachlorobenzene	HHH. Benzo(k)fluoranthene	www.

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LDC #: 12/10/2012 #: 2013 #: 2013

# Initial Calibration Calculation Verification VALIDATION FINDINGS WORKSHEET

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

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

 $\label{eq:RFF} RFF = (A_{*})(C_{*})/(A_{*})(C_{*})$  everage RRF = sum of the RRFs/number of standards %RSD = 100 \* (S/X)

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

 $A_{\mathbf{t}}^{*} = Area \text{ of associated internal standard} \\ C_{\mathbf{t}}^{*} = Concentration of internal standard \\ X = Mean of the RRFs$ 

							-
	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated	_
	RRF	88 F	Average DDF				
ompound (Reference Internal Standard)	( 50 std)	( 55 std)	(initial)	Average nur (Initial)	USH%	%RSD	
+(1st internal standard)	(4)	1.421	1.404	1.404	£Ι&	2 12	
alene (Ond internal atendard)					5	0.1	_

				Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
*	Standard ID	Calibration Date	Compound (Reference Internal Standard)	RRF ( SØ std)	RRF ( ろつ std)	Average RRF (initial)	Average RRF (Initial)	%RSD	%RSD
-	ICK L	8/25/07	Phenot-(1st internal standard)	(-4-)	141	1.404	404	£Ι&	213
		12/ /	Naphthalene (2nd internal standard)					2	) i d
			Fluorene (3rd internal standard)	-					
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						
~	1041	9/11/07	Phenol (1st internal standard)	8 czil	822.1	8521	1258	202	100
	)		Naphthalene (2nd internal standard)						1 , r
			Fluorene (3rd internal standard)						/
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						
, co	1 AL	8/+/"	Phanal-(1st internal standard)	6221	1.779	1.777	1-1-1-1	0 4 0	069
		10/11/	Naphthalene (2nd internal standard)		<b>       </b>				126
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						

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

LDC #:[[26]] SDG #:1810613

# **Continuing Calibration Results Verification** VALIDATION FINDINGS WORKSHEET

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

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

% Difference = 100 \* (ave. RRF - RRF)/ave. RRF RRF =  $(A_{\lambda})(C_{a})/(A_{a})(C_{\lambda})$ 

ave. RRF = initial calibration average RRF RRF = continuing calibration RRF  $A_x = Area of compound,$  $<math>C_x = Concentration of compound,$ Where:

 $A_{s}$  = Area of associated internal standard  $C_{s}$  = Concentration of internal standard

					Reported	Recalculated	Reported	Recalculated
*	Standard ID	Calibration Date	Compound (Reference Internal , J Standard)	Average RRF (initial)	RRF (CC)	RRF (CC)	Q%	Q%
-	est ha	9/11/07	Phend (1st internal standard) 1-1-7	1.404	Lec'l	722.1	12.6	126
	_	. /	Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
	STD050	9/10/07	Bis(2-ethythewyt)phthalate (5th hitemal standard)	404.1	1.305-	.305	4.4	7 7
		/ /	Benzo(a)pyrene (6th internal standard)				/	
N	SETDISON 9.	9/11/07	Phonel (1st internal standard)	852	1.356	958.1	x 1	7 8
	-	/ /	Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					
0	5517050	70/EJ/B	Phonol (1% internal standard)	1-777	1.746	1.746	1.7	N-1
	-	/ /	Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					
Con reca	Comments: <u>Refer to</u> recelci lated results	o Continuing C	Comments: <u>Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.</u>	qualifications and	associated samp	oles when reported	results do not agree	within 10.0% of the

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LDC #://56/024 SDG #:/8/06/5

7402-2600-147209

#### VALIDATION FINDINGS WORKSHEET Surrogate Results Verification

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

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

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found SS = Surrogate Spiked

#### Sample ID: /

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	50	33.80	68	68	0
2-Fluorobiphenyl		35.98	72	72	
Terphenyl-d14		36.68	73	73	
Phenol-d5	100	59.10	59	59	
2-Fluorophenol	1	46.79	47	AT	
2,4,6-Tribromophenol		52,37	52	. 52	
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

#### Sample ID:\_\_\_\_\_

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

#### Sample ID:\_\_\_\_\_

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

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LDC #: <u></u>	SDG #:



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

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

% Recovery = 100 \* (SSC - SC)/SA

RPD = I MS - MSD I \* 2/(MS + MSD)

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MS/MSD samples:

MS = Matrix spike percent recovery

SSC = Spiked sample concentration SA = Spike added

Where:

MSD = Matrix spike duplicate percent recovery

SC = Sample concentation

	s		Sample		Sample	Matrix Spike	Spike	Matrix Spike Duplicate		USW/SW	an la
Compound	PA )	Addidd Arg(S)	Concentration	Concentration	tration (5-)	Percent Recovery	ecovery	Percent Recovery	ecovery	RPD	
	/ SW	MSD			MSD	Reported	<b>Becalc</b>	Reported	Recalc.	Reported	Recalculated
Phenoi											
N-Nitroso-di-n-propylamine											
4-Chloro-3-methylphenol											
Acenaphthene											
Pentachlorophenol											
Pyrene	-										
TTT	3420	3420	A.N	2870	-280	<b>2</b> 5	\$	de N	78	1	1
-		-									
-									-		

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

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

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

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

RPD = I LCS - LCSD I \* 2/(LCS + LCSD)

LCS = Laboratory control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 71 1062-75

	Sp	ike	Sp	ike		S				
Compound	¥¥	Added	Concer	Conceptuation	C					
		//			Leicent		Percent Recovery	ecovery	R	RPD
	SO I	I CSD	1 CS (	1 CSD	Reported	Recalc	Renorted	Recair	Renorted	Deceloulated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										
	3330	٨Å	2552	NA	77	11				
										-

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

LDC #:[	7361 2=h
SDG #:	1361 2-b 12/0615

## VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

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



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

Conce	entratio	$pn = (A_1)(I_1)(V_1)(DF)(2.0)$	Example:						
		(A,)(RRF)(V)(V)(%S)		14					
A <sub>x</sub>	=	Area of the characteristic ion (EICP) for the compound to be measured	Sample I.D	<u>NØ</u> ,		:			
A <sub>is</sub>	-	Area of the characteristic ion (EICP) for the specific internal standard							
l <u>s</u>	÷	Amount of internal standard added in nanograms (ng)	Conc. = ((	)()	)()	)(	_)()(	_)(	<del>)</del>
V <sub>o</sub>	H	Volume or weight of sample extract in milliliters (ml) or grams (g).							
V,	=	Volume of extract injected in microliters (ul)	=						
V,	=	Volume of the concentrated extract in microliters (ul)							
Df	=	Dilution Factor.							
%S	=	Percent solids, applicable to soil and solid matrices only.							
2.0	=	Factor of 2 to account for GPC cleanup	1						

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification
			[		
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## LDC Report# 17561E2b

# Laboratory Data Consultants, Inc. Data Validation Report

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

Collection Date: September 10, 2007

LDC Report Date: October 17, 2007

Matrix: Water

Parameters: 2,2'-/4,4'-Dichlorobenzil

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): IQI0760

Sample Identification

Rinsate 3

#### Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C for 2,2'-/4,4'-Dichlorobenzil.

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 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds were within validation criteria.

#### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0%.

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

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

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No 2,2'-/4,4'-Dichlorobenzil was found in the method blanks.

Sample "Rinsate 3" was identified as a rinsate. No 2,2'-/4,4'-Dichlorobenzil was found in this blank.

#### VI. Surrogate Spikes

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

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there was insufficient sample volume for analysis of the matrix spike and matrix spike duplicate.

#### VIII. Laboratory Control Samples (LCS)

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

### 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

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

#### XVI. Field Duplicates

No field duplicates were identified in this SDG.

### BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Data Qualification Summary - SDG IQI0760

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Laboratory Blank Data Qualification Summary - SDG IQI0760

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Field Blank Data Qualification Summary - SDG IQI0760

No Sample Data Qualified in this SDG

#### VALIDATION COMPLETENESS WORKSHEET Level III

Date: <u>/0/15/0</u> Page: <u>//of /</u> Reviewer: \_\_\_\_\_ 2nd Reviewer: \_\_\_\_\_

# METHOD: GC/MS 2,2'-/4,4'-Dichlrobenzil (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
١.	Technical holding times	A	Sampling dates: 9/10/p7
11.	GC/MS Instrument performance check	A	1 / /
	Initial calibration	A	NO CCC & SPCC
IV.	Continuing calibration	A	
<u>v.</u>	Bianks	A	
VI.	Surrogate spikes	Å	
VII.	Matrix spike/Matrix spike duplicates	N	insufficient sample
VIII.	Laboratory control samples	A	LCSD
IX.	Regional Quality Assurance and Quality Control	N	
<u>X.</u>	Internal standards	$\overline{\mathbf{A}}$	
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	N	
XVII.	Field blanks	ND	R=1

Note:

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

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Validated Samples:

1	Rinsate 3 W	11	TIIIOT-Back	21	31	
2		12	`	22	32	
3		13		23	33	
4		14		24	34	
5		15		25	35	
6		16		26	 36	
7		17		27	 37	
8		18		28	38	
9		19		29	39	
10		20		30	40	

LDC #: <u>17561E2b</u> SDG #: <u>IQI0760</u>

Laboratory: Test America

## LDC Report# 17561F2b

# Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
Collection Date:	September 10, 2007
LDC Report Date:	October 17, 2007
Matrix:	Soil
Parameters:	2,2'-/4,4'-Dichlorobenzil
Validation Level:	EPA Level III
Laboratory:	TestAmerica, Inc.

Sample Delivery Group (SDG): IQI0951

## Sample Identification

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

#### Introduction

This data review covers 17 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C for 2,2'-/4,4'-Dichlorobenzil.

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 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds were within validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0%.

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

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

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No 2,2'-/4,4'-Dichlorobenzil was found in the method blanks.

Sample "Rinsate 3" (from SDG IQI0760) was identified as a rinsate. No 2,2'-/4,4'-Dichlorobenzil was found in this blank.

## VI. Surrogate Spikes

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

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Laboratory Control Samples (LCS)

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

#### IX. Regional Quality Assurance and Quality Control

Not applicable.

#### X. Internal Standards

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

#### XI. Target Compound Identifications

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

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

#### XVI. Field Duplicates

Samples TSB-BR-04-0 and TSB-BR-04-0-(FD) were identified as field duplicates. No 2,2'-/4,4'-Dichlorobenzil was detected in any of the samples.

#### BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Data Qualification Summary - SDG IQI0951

No Sample Data Qualified in this SDG

**BRC Parcel 4A/4B Sampling Event** 

2,2'-/4,4'-Dichlorobenzil - Laboratory Blank Data Qualification Summary - SDG IQI0951

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Field Blank Data Qualification Summary - SDG IQI0951

No Sample Data Qualified in this SDG

## VALIDATION COMPLETENESS WORKSHEET

Level III

Date:	<u>10/15/07</u>
Page:_	_of
Reviewer:	
2nd Reviewer:	

METHOD: GC/MS 2,2'-/4,4'-Dichlrobenzil (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.

Ì	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/10/07
. 11.	GC/MS Instrument performance check	A	
Ш.	Initial calibration	$\mathbf{A}$	Mecc & spe c
IV.	Continuing calibration	A	st l
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	$\mathbf{A}$	
VIII.	Laboratory control samples	$\mathbf{A}$	LCS D
IX.	Regional Quality Assurance and Quality Control	N	
<b>X</b> .	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	$\mathcal{P}=3+4$
XVII.	Field blanks	NP	RINSAFE 3 (1&10760)

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: MSOILS

1	TSB-BR-05-0	11	TSB-BJ-04-10		21	711TOT3-B40,	31	
2	TSB-BR-05-10	12	TSB-BR-02-0	/	22	1	32	
з,	TSB-BR-04-0	13	TSB-BR-02-10		23		33	
4	TSB-BR-04-0-(FD)	14	TSB-BR-03-0	4	24		34	
5	TSB-BR-04-10	15	TSB-BR-03-10		25		35	
6	TSB-BJ-05-0	16	TSB-BR-05-0MS	*	26		36	
7	TSB-BJ-05-10	17	TSB-BR-05-0MSD		27		37	
8	TSB-BR-01-0	18			28		38	
9	TSB-BR-01-10	19			29		39	
10	TSB-BJ-04-0	20			30		40	

LDC #: 17561F2b

Laboratory: Test America

SDG #: IQI0951

## LDC Report# 17561G2b

# Laboratory Data Consultants, Inc. Data Validation Report

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

Collection Date: September 10, 2007

LDC Report Date: October 17, 2007

Matrix:

Parameters: 2,2'-/4,4'-Dichlorobenzil

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): IQI1087

### Sample Identification

TSB-BJ-03-0 TSB-BJ-03-0(FD) TSB-BJ-03-10

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#### Introduction

This data review covers 3 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C for 2,2'-/4,4'-Dichlorobenzil.

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 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds were within validation criteria.

### IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0%.

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

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

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No 2,2'-/4,4'-Dichlorobenzil was found in the method blanks.

Sample "Rinsate 3" (from SDG IQI0760) was identified as a rinsate. No 2,2'-/4,4'-Dichlorobenzil was found in this blank.

## VI. Surrogate Spikes

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

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Laboratory Control Samples (LCS)

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

## IX. Regional Quality Assurance and Quality Control

Not applicable.

#### X. Internal Standards

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

#### XI. Target Compound Identifications

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

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

#### XVI. Field Duplicates

Samples TSB-BJ-03-0 and TSB-BJ-03-0(FD) were identified as field duplicates. No 2,2'-/4,4'-Dichlorobenzil was detected in any of the samples.

## BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Data Qualification Summary - SDG IQI1087

No Sample Data Qualified in this SDG

**BRC Parcel 4A/4B Sampling Event** 

2,2'-/4,4'-Dichlorobenzil - Laboratory Blank Data Qualification Summary - SDG IQI1087

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Field Blank Data Qualification Summary - SDG IQI1087

No Sample Data Qualified in this SDG

## VALIDATION COMPLETENESS WORKSHEET

Level III

	Date: /	<u>0/15/07</u>
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	iewer:	<b>4</b>
2nd Rev	iewer:_	
		/

METHOD: GC/MS 2,2'-/4,4'-Dichlrobenzil (EPA SW 846 Method 8270C)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/10/07
11.	GC/MS Instrument performance check	4	
III.	Initial calibration	A	Wecce & space
IV.	Continuing calibration	A	V
V.	Blanks	$\mathbf{A}$	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	12/095/
VIII.	Laboratory control samples	7	2C510
IX.	Regional Quality Assurance and Quality Control	N	
<b>X</b> .	Internal standards	Þ	
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	NO	D=1+2
XVII.	Field blanks	ND	Rinsate 3 (12/0760)

Note:

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

EB = Equipment blank

Validated Samples:

1	TSB-BJ-03-0	5 11	TITOT3-BACI	21	31	
2	TSB-BJ-03-0(FD)	12	T117073-BAC/ T1190T0-BAC/	22	32	
3	TSB-BJ-03-10	13		23	 33	
4		14		24	34	
5		15		25	35	
6		16		26	 36	
7		17		27	37	
8		18		28	38	
9		19		29	39	
10		20		30	40	

LDC #: <u>17561G2b</u>

Laboratory: Test America

SDG #: IQI1087

## LDC Report# 17561H2b

# Laboratory Data Consultants, Inc. **Data Validation Report**

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
Collection Date:	September 7, 2007
LDC Report Date:	October 17, 2007
Matrix:	Soil
Parameters:	2,2'-/4,4'-Dichlorobenzil
Validation Level:	EPA Level III
Laboratory:	TestAmerica, Inc.

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## Sample Delivery Group (SDG): IQI1139

#### Sample Identification

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**TSB-AR-06-0** TSB-AR-06-0-DUP TSB-AR-06-10 TSB-AJ-01-0 TSB-AJ-01-10 TSB-AJ-02-0 TSB-AJ-02-0-DUP TSB-AJ-02-10 TSB-AJ-03-0 TSB-AJ-03-10 TSB-BJ-06-0 TSB-BJ-06-10 TSB-BJ-01-0 TSB-BJ-01-10 TSB-BJ-02-0 TSB-BJ-02-10 TSB-BR-06-0 TSB-BR-06-10 TSB-AJ-02-0-DUPMS TSB-AJ-02-0-DUPMSD

#### Introduction

This data review covers 20 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C for 2,2'-/4,4'-Dichlorobenzil.

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 30.0% for all compounds.

Average relative response factors (RRF) for all target compounds were within validation criteria.

#### **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0%.

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

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

#### V. Blanks

Method blanks were reviewed for each matrix as applicable. No 2,2'-/4,4'-Dichlorobenzil was found in the method blanks.

Sample "Rinsate 2" (from SDG IQI0614) was identified as a rinsate. No 2,2'-/4,4'-Dichlorobenzil was found in this blank.

#### VI. Surrogate Spikes

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

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

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### VIII. Laboratory Control Samples (LCS)

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

## IX. Regional Quality Assurance and Quality Control

Not applicable.

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#### 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

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

#### XVI. Field Duplicates

Samples TSB-AR-06-0 and TSB-AR-06-0-DUP and samples TSB-AJ-02-0 and TSB-AJ-02-0-DUP were identified as field duplicates. No 2,2'-/4,4'-Dichlorobenzil was detected in any of the samples.

#### BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Data Qualification Summary - SDG IQI1139

No Sample Data Qualified in this SDG

**BRC Parcel 4A/4B Sampling Event** 

2,2'-/4,4'-Dichlorobenzil - Laboratory Blank Data Qualification Summary - SDG IQI1139

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event 2,2'-/4,4'-Dichlorobenzil - Field Blank Data Qualification Summary - SDG IQI1139

No Sample Data Qualified in this SDG

## VALIDATION COMPLETENESS WORKSHEET

Level III

Date:	10/15/07
Page:_	<u>/of</u>
Reviewer:	<u>'9′</u>
2nd Reviewer:	
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METHOD: GC/MS 2,2'-/4,4'-Dichlrobenzil (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
١.	Technical holding times	t	Sampling dates: 9/7/07
11.	GC/MS Instrument performance check	$\mathbf{A}$	
III.	Initial calibration	A	NO acc & Spec
IV.	Continuing calibration / CV	A	d I
V.	Blanks	$\mathbf{\Phi}$	
VI.	Surrogate spikes	4	
VII.	Matrix spike/Matrix spike duplicates	$\mathbf{A}$	
VIII.	Laboratory control samples	$\mathbf{A}$	LCS
IX.	Regional Quality Assurance and Quality Control	N	
<b>X</b> .	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	$\mathbf{A}$	
XVI.	Field duplicates	ND	D = 1 + 2, -6 + 7
XVII.	Field blanks	ND	D = 1 + 2, -6 + 7 ' Rinsale 2 (1810614)

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:

LDC #: 17561H2b

Laboratory: Test America

SDG #: IQI1139

. . . . . . . . . . .

1	TSB-AR-06-0	11	TSB-BJ-06-0	21	TIITOTZ-BOCI	31	
2	TSB-AR-06-0-DUP	12	TSB-BJ-06-10	22	T117072-Bdc1 T1 20072-Bdc1	32	
3	TSB-AR-06-10	13	TSB-BJ-0¥-0	23		33	
4	TSB-AJ-01-0	14	TSB-BJ-01-10	24		34	
5	TSB-AJ-01-10	15	TSB-BJ-02-0	25		35	
6,	TSB-AJ-02-0	16	TSB-BJ-02-10	26		36	
7	TSB-AJ-02-0-DUP	17	TSB-BR-06-0	27		37	
8	TSB-AJ-02-10	18	TSB-BR-06-10	28		38	
9	TSB-AJ-03-0	19	TSB-AJ-02-0-DUPMS	29		39	
10	TSB-AJ-03-10	20	TSB-AJ-02-0-DUPMSD	30		40	

## BRC Parcel 4A/4B Sampling Event Data Validation Reports LDC# 17561

Chlorite & Hexavalent Chromium

## **LDC Report#** 17561A6

# Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
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Collection Date: September 6, 2007

LDC Report Date: October 15, 2007

Matrix: Water

Parameters: Hexavalent Chromium & Chlorite

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): IQI0476

## Sample Identification

RINSATE 1 RINSATE 1MS RINSATE 1MSD

#### Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.1 for Chlorite and EPA SW 846 Method 7196A for Hexavalent Chromium.

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 X.

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 were met.

#### b. Calibration Verification

Calibration verification frequency and analysis criteria were met.

#### III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium or chlorite was found in the initial, continuing and preparation blanks.

Sample "RINSATE 1" was identified as a rinsate. No hexavalent chromium or chlorite was found in this blank.

## IV. Surrogate Spikes

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

#### V. 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.

## VI. Duplicates

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

## VII. Laboratory Control Samples

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

#### VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

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

## X. Field Duplicates

No field duplicates were identified in this SDG.

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium & Chlorite - Data Qualification Summary - SDG IQI0476

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium & Chlorite - Laboratory Blank Data Qualification Summary -SDG IQI0476

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium & Chlorite - Field Blank Data Qualification Summary - SDG IQI0476

No Sample Data Qualified in this SDG

## VALIDATION COMPLETENESS WORKSHEET

LDC #: <u>17561A6</u> SDG #: <u>IQI0476</u> Laboratory: Test America

#### Level III

	Date:_ Page:_	1. of ]
F	Reviewer:	lui
2nd F	Reviewer:	1_
	_	/

METHOD: Chlorite (EPA Method 300.1), Hexavalent Chromium (EPA SW846 Method 7196A)

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
١.	Technical holding times	A	Sampling dates: 9/6/07
IIa.	Initial calibration	A	
llb.	Calibration verification	A	· · · · · · · · · · · · · · · ·
111.	Blanks	A	· · · · · ·
١V	Matrix Spike/Matrix Spike Duplicates	A	2 ms / men
v	Duplicates	N	
VI.	Laboratory control samples	A	ley
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	Ň	
x	Field blanks	1/1	R=

Note:

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

EB = Equipment blank

Validated Samples:

1	Rinsate 1	11	21	31	
2	Rinsate 1MS	12	22	32	
3	Rinsate 1MSD	13	23	33	
4	MB	14	24	34	
5		15	25	35	
3		16	26	36	
/		17	27	37	
3		18	28	38	
9		19	29	39	
10		20	30	40	

SUMO Notes:

LDC #: 1756 A6 SDG #: See an

#### VALIDATION FINDINGS WORKSHEET Sample Specific Analysis Reference

Page: \_\_\_\_\_\_\_ Reviewer: \_\_\_\_\_\_ 2nd reviewer: \_\_\_\_\_\_

All circled methods are applicable to each sample.

Gampia ID	
Sample ID	Parameter
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CR?
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
MZZ	ph TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC $(CR)^+$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC $CR^{\circ+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\cdot</math></sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup><math>0+</math></sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\cdot</math></sup> NH <sub>3</sub> TKN TOC CR <sup><math>6+</math></sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\cdot</math></sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CR8+
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CR8+
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO₃ NO₂ SO₄ PO₄ ALK CN <sup>-</sup> NH₃ TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>2</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>

12:

Comments:\_

METHODS.6

## **LDC Report#** 17561B6

# Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
Collection Date:	September 5, 2007
LDC Report Date:	October 15, 2007
Matrix:	Soil
Parameters:	Hexavalent Chromium
Validation Level:	EPA Level III
Laboratory:	TestAmerica, Inc.

Sample Delivery Group (SDG): IQI0543

## Sample Identification

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

### Introduction

This data review covers 13 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196A for Hexavalent Chromium.

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 were met.

# b. Calibration Verification

Calibration verification frequency and analysis criteria were met.

# III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium was found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

# IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

# V. Duplicates

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

# **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-AR-01-0' and TSB-AR-01-0'-DUP were identified as field duplicates. No hexavalent chromium was detected in any of the samples.

# BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Data Qualification Summary - SDG IQI0543

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG IQI0543

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Field Blank Data Qualification Summary - SDG IQI0543

No Sample Data Qualified in this SDG

LDC #: <u>17561B6</u>	VALIDATION COMPLETENESS WORKSHEET
SDG #: IQI0543	Level III
Laboratory: Test America	-

Date:	10/10/-4
Page:_	
Reviewer:	w_
2nd Reviewer:	<u> </u>

METHOD: Hexavalent Chromium (EPA SW846 Method 7196A)

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

	Validation Area	·	Comments
I.	Technical holding times	A	Sampling dates: 9 15/04
lla.	Initial calibration	A	
lib.	Calibration verification	A	
111.	Blanks	A ···	
IV	Matrix Spike/Matrix Spike Duplicates	<u>на</u> (Д. 1	2 MS/USD
V	Duplicates	N	
VI.	Laboratory control samples	A	Ley
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	M	$(1, \geq)$
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:

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

Notes:

# LDC Report# 17561C6

# Laboratory Data Consultants, Inc. Data Validation Report

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

Collection Date: September 7, 2007

LDC Report Date: October 15, 2007

Matrix: Water

Parameters: Hexavalent Chromium & Chlorite

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): 1Q10614

## Sample Identification

RINSATE 2 RINSATE 2MS RINSATE 2MSD

# Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.1 for Chlorite and EPA SW 846 Method 7196A for Hexavalent Chromium.

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 X.

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 were met.

# b. Calibration Verification

Calibration verification frequency and analysis criteria were met.

### III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium or chlorite was found in the initial, continuing and preparation blanks.

Sample "RINSATE 2" was identified as a rinsate. No hexavalent chromium or chlorite was found in this blank.

# IV. Surrogate Spikes

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

# V. 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.

# VI. Duplicates

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

# VII. Laboratory Control Samples

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

# VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

# IX. Overall Assessment of Data

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

# X. Field Duplicates

No field duplicates were identified in this SDG.

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium & Chlorite - Data Qualification Summary - SDG IQI0614

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event

Hexavalent Chromium & Chlorite - Laboratory Blank Data Qualification Summary - SDG IQI0614

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium & Chlorite - Field Blank Data Qualification Summary - SDG IQI0614

No Sample Data Qualified in this SDG

LDC #: <u>17561C6</u>	_ VALIDATION COMPLETENESS WORKSHEET	Date
SDG #: IQI0614	Level III	Page:
Laboratory: Test America	-	Reviewer

	Date: <u>///////</u>	7
	Page:of	<i>.</i>
	Reviewer:	
2nd	Reviewer:	
	~	

METHOD: Chlorite (EPA Method 300.1), Hexavalent Chromium (EPA SW846 Method 7196A)

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

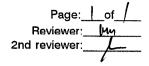
	Validati	on Area					Comments	5
1.	Technical holding times			A	Sampling o	lates: 9/7/1	» Ĵ	
lla.	. Initial calibration			A		• ·	/	
llb	. Calibration verification			A				
- 111.	Blanks			A				
IV	Matrix Spike/Matrix Spik	e Duplicate	es	A	345	/ws>		
v	Duplicates			Ň	· , ·	, .		
VI.	. Laboratory control samp	les		A	103			
VII	. Sample result verificatio	n		N				
VII	I. Overall assessment of d	lata		A				
IX.	. Field duplicates			M				
L X	Field blanks			ND	R= )			
Note: Valida	A = Acceptable N = Not provided/applica SW = See worksheet ated Samples:	able	R = Rins	o compound: sate eld blank		D = Dupli TB = Trip EB = Equ	blank ipment blank	
1	RINSATE 2	11			21		31	
2	RINSATE 2MS	12			22		32	
3	RINSATE 2MSD	13			23		33	
4	MB	14			24		34	
5		15			25		35	
6		16			26		36	
7		17			27		37	
8		18			28		38	
9		19			29		39	
10		20			30		40	

Notes:

Sunouti = A

LDC #: 1756 66 SDG #:\_\_\_\_

# VALIDATION FINDINGS WORKSHEET Sample Specific Analysis Reference



All circled methods are applicable to each sample.

Sample ID	Parameter
ļ 	ph TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $(R^{0+})$ ( <i>hlowify</i> )
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\cdot</math></sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
~ 2,3	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $(CR^{6})$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC CR <sup><math>\circ+</math></sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>8+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC $CR^{0+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CR6+
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>1</sup> NH <sub>3</sub> TKN TOC CR <sup>5+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>8+</sup>
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	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\cdot</math></sup> NH <sub>3</sub> TKN TOC CR <sup><math>\circ+</math></sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\circ</math></sup> NH <sub>3</sub> TKN TOC CR <sup><math>\circ+</math></sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\circ</math></sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\circ</math></sup> NH <sub>3</sub> TKN TOC CR <sup><math>\circ+</math></sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\circ</math></sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN' NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
L	pH TDS CI F NO, NO, SO, PO, ALK CN NH, TKN TOC CR <sup>6+</sup>

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Comments:\_\_\_

# LDC Report# 17561D6

# Laboratory Data Consultants, Inc. Data Validation Report

**BRC Parcel 4A/4B Sampling Event** 

Project/Site Maine.	
Collection Date:	September 6, 2007
LDC Report Date:	October 15, 2007
Matrix:	Soil
Parameters:	Hexavalent Chromium
Validation Level:	EPA Level III & IV
Laboratory:	TestAmerica, Inc.

# Sample Delivery Group (SDG): IQI0615

### Sample Identification

Project/Site Name:

TSB-AR-08-0'\*\* TSB-AR-08-10'\*\* TSB-AR-11-0'\*\* TSB-AR-11-0'-DUP\*\* TSB-AR-11-10'\*\* TSB-AR-14-0'\*\* TSB-AR-14-10'\*\* TSB-AR-13-0'\*\* TSB-AR-13-10'\*\* TSB-AR-10-0'\*\* TSB-AR-10-10'\*\* TSB-AR-9-0'\*\* TSB-AR-9-10'\*\* TSB-AR-12-0'\*\* TSB-AR-12-10' TSB-AR-3-0' TSB-AR-3-10' TSB-AR-13-0'MS TSB-AR-13-0'MSD

\*\*Indicates sample underwent EPA Level IV review

# Introduction

This data review covers 19 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196A for Hexavalent Chromium.

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

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

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

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

The following are definitions of the data qualifiers:

- J+ Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J- Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.
- J Data are qualified as estimated; it is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.
- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- R Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

# I. Technical Holding Times

All technical holding time requirements were met.

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 were met.

# b. Calibration Verification

Calibration verification frequency and analysis criteria were met.

# III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium was found in the initial, continuing and preparation blanks.

Sample "Rinsate 1" (from SDG IQI0476) was identified as a rinsate. No hexavalent chromium was found in this blank.

# IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

# V. Duplicates

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

# 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

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

# VIII. Overall Assessment of Data

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

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# IX. Field Duplicates

Exercise and a substance of the second s

Samples TSB-AR-11-0'\*\* and TSB-AR-11-0'-DUP\*\* were identified as field duplicates. No hexavalent chromium was detected in any of the samples with the following exceptions:

	Concentra	tion (mg/Kg)	D:#			
Analyte	TSB-AR-11-0'**	TSB-AR-11-0'-DUP**	Difference (Limits)	Flag	A or P	
Hexavalent chromium	0.28	0.25	0.03 (≤1.0)	-	-	

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Data Qualification Summary - SDG IQI0615

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No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG IQI0615

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Field Blank Data Qualification Summary - SDG IQI0615

No Sample Data Qualified in this SDG

LDC #:_	<u>17561D6</u>	
SDG #:_	IQI0615	
Laborat	ory: Test America	

# VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date:	10/11/
Page:_	of
Reviewer:	wen
2nd Reviewer:	V
	7=-

METHOD: Hexavalent Chromium (EPA SW846 Method 7196A)

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
Ι.	Technical holding times	A	Sampling dates: 9 6 0 7
lla.	Initial calibration	A	
llb.	Calibration verification	A	
ÌII.	Blanks	A	
ĪV	Matrix Spike/Matrix Spike Duplicates	A	2 M 5 /450
v	Duplicates	N	
VI.	Laboratory control samples	4	Les
VII.	Sample result verification	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	Å	
IX.	Field duplicates	12SW	(3,4)
x	Field blanks	ND	R= Rinsate (IDI0476)

Note:

A = Acceptable N = Not provided/applicable

SW = See worksheet

ND = No compounds detected R = Rinsate FB = Field blank D = Duplicate TB = Trip blank

EB = Equipment blank

Validated Samples: \*\* Indicates sample underwent Level IV validation  $\langle a_{\delta} \rangle$ 

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

Notes:

LDC #: 1956 10 b SDG #: Gel we

#### VALIDATION FINDINGS CHECKLIST



Method:Inorganics (EPA Method // ] 6 A )		,		
Validation Area	Yes	No	NA	Findings/Comments
1: Technical holding times	1.14		ġ,	
All technical holding times were met.	V			
Coolor temperature criteria was met.				
II. Calibration	er i de Gelete			
Were all instruments calibrated daily, each set-up time?	1			
Were the proper number of standards used?	1			
Were all initial calibration correlation coefficients > 0.995?				
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	/			
Were titrant checks performed as required? (Level IV only)			1	
Were balance checks performed as required? (Level IV only)			-	
III Blanksi sa			1.	
Was a method blank associated with every sample in this SDG?				
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
IV. Mattix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	~			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	1			
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq$ 20% for waters and $\leq$ 35% for soil samples? A control limit of $\leq$ CRDL( $\leq$ 2X CRDL for soil) was used for samples that were $\leq$ 5X the CRDL, including when only one of the duplicate sample values were $\leq$ 5X the CRDL.	/			
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	1			
Was an LCS analyzed per extraction batch?	-			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	/			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			_	
Were the performance evaluation (PE) samples within the acceptance limits?			/	

# Method: Inorganics (EPA Method 9196A)

1756 LDC #:\_ SDG #:\_

#### VALIDATION FINDINGS CHECKLIST

Page: <u>}of</u> Reviewer: <u>|</u>M9 2nd Reviewer: \_\_\_\_\_ . ...

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	V			
Were detection limits < RL?	1			
VIII (Derfallassessment of data,				A PRODUCTION OF A CARD
Overall assessment of data was found to be acceptable.	$\checkmark$			
DX*Field christians				的情况的情况对他们对
Field duplicate pairs were identified in this SDG.	$\checkmark$			
Target analytes were detected in the field duplicates.	V			
XTried planks and the state of				<b>动影响 法国际</b> 有关的 计算机
Field blanks were identified in this SDG.	$\checkmark$			•·
Target analytes were detected in the field blanks.		$\checkmark$		

LDC#: <u>17561D6</u> SDG#: See Cover

# VALIDATION FINDINGS WORKSHEET Field Duplicates

Page: \_ \_ of \_\_\_\_ Reviewer: \_\_\_\_\_ 2nd Reviewer: \_\_\_\_\_

Inorganics, Method 7196A

AND A STORES STOLEN AND A

<u>ON NA</u>

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

	Concentrati	on (mg/Kg)				Overlification	
Analyte	3	4	RPD (≤50)	Difference	Limits	Qualification (Parent only)	
Cr (VI)	0.28	0.25		0.03	(≤1.0)		

V:\FIELD DUPLICATES\FD\_inorganic\17561D6.wpd

90	r coul
27	Ę
<b>.</b> .	
*	#
р С	SDG

Initial and Continuing Calibration Calculation Verification VALIDATION FINDINGS WORKSHEET

7 5 Page:

> 9196A METHOD: Inorganics, Method

The correlation coefficient (r) for the calibration of \_

91191-7 was recalculated. Calibration date:\_ tet An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

Where, Found = concentration of each analyte <u>measured</u> in the analysis of the ICV or CCV solution True = concentration of each analyte in the ICV or CCV source %R = <u>Found</u> x 100 True

			(1ml)		Recalculated	Reported	A second the
Type of Analysis	Analyte		CONE. 41-) (units)	plur (units)	.r or %R	r or %R	Acceptable (Y/N)
Initial calibration		Blank	0				
Calibration verification		Standard 1	(0-0)	0.008			
		Standard 2	0.005	0,019			
		Standard 3	0,1	0.075	2		ح
	, ,et	Standard 4	٥٠٧	0.380	X-0,999945	000	
	2	Standard 5					
		Standard 6					
		Standard 7					
Calibration verification	Cr et	0,30	6.309		50)	M	٢
Calibration vertication							
Celibretion verification							

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

CALCLC.6

METHOD: Inorganics, Method       If $f_{i} f_{i} f_{j}$ METHOD: Inorganics, Method       Intermediate the sample and a metrix spike earnple were recalculated using the following formule:         Parcent recoveries (%A) for a laboratory control sample and a metrix spike earnple were recalculated using the reality. True       Concentration of each analyte measure.         %A = Found       Found       = Concentration of each analyte intelly. Shi (ample result).       True       = concentration of each analyte intelly. Shi (ample result).         %A = Found       True       = concentration of each analyte intelly intelligent.       True       = concentration of each analyte intelligent.         A sample and duplicate relative percent difference (FPD) was recalculated using the following formula:       FP       FP       FP         A sample and toplicate relative percent difference (FPD) was recalculated using the following formula:       Frame       Concentration         RPD = <u>15.D1</u> × 100 Where.       S = Original sample concentration       Frame       Frame       Frame         (S+D)/2       True       S = Diplicate sample concentration       Frame       Frame       Frame       Monopolicate         RPD = <u>15.D1</u> × 100 Where.       S = Original sample concentration       Frame       Frame       Monopolicate         RPD = <u>15.D12</u> × 100 Where.       S = Original sample concentr	Inorganics, Method $1/15/4$ Inorganics, Method $1/15/4$ covertes (sR) for a laboratory control sample and a matrix spike sample were recalculated using the following formula: $\frac{101}{10} \times 100$ Where, Found = SRR (spiked sample measured in the analysis of the sample. For the matrix spike calculated a concentration of each analyte in the source. $\frac{101}{12} \times 100$ Where, Found = SRR (spiked sample result). SR (sample result). $\frac{101}{12} \times 100$ Where, Found = SRR (spiked sample concentration $\frac{101}{12} \times 100$ Where, S = Original sample concentration $\frac{101}{12} \times 100$ Where $\frac{100}{12} \times 100$ W = $\frac{100}{12} \times 100$ W = $\frac{1000}{12} \times 1000$	anics, Method <u>11564</u> as (%R) for a laboratory control sample (%R) for a laboratory control sample True = True =	vike sample were recalculated of each analyte measured in t spiked sample result) - SR (s if each analyte in the source. ted using the following formul ted using the following formul a / s $True / D$ (units) $(b, o)$	using the following he analysis of the s ample result). a: <u>%R / RPD</u>	formula: ample. For the matr <u>Reported</u> %R / RPD	ix spike calculatio
$\frac{1}{110} = \frac{1}{110} \times 100 \text{ Where, } Found = \text{SR} (\text{spled sample result)}. The analysis of the sample. For the matrix splke calculation, T_{\text{TLB}} = \frac{1}{200 \text{ concentration of each analyte in the source.}}A sample and duplicate relative percent difference (RPD) was reacticulated using the following formula:\frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(S+D)/2} \times 100 \text{ Where, } S = Original sample concentration  RPD = \frac{1}{(N+2)} + 1$	$\begin{array}{cccccccc} \hline \label{eq:concentration} \hline \end{rest} & \end{rest} \\ \hline \en$	100 Where Found = True = Tru	if each analyte <u>measured</u> in the spiked sample result) - SR (s feach analyte in the source. The using the following formule concentration $d/s$ $True/D$ $d/s$ $True/D$ $d/s$ $True/D$ $d/s$ $(units)$ $(b, o)$	he analysis of the s ample result). a: %R / RPD	ample. For the matr Reported %R / RPD	ix spike calculatio
and duplicate relative percent difference (RPD) was recalculated using the following formula: $\begin{array}{c c c c c c c c c c c c c c c c c c c $	and duplicate relative percent difference (RPD) was recalculated using the following formula: $\begin{array}{c ccccccccccccccccccccccccccccccccccc$	duplicate relative percent difference (RPD) was recalcula x 100 Where, S = Original sample Duplicate samp Type of Analysis Element (un Laboratory control sample	ted using the following formule concentration le concentration d/s $True / D(units)d/s$ $(b, o)$		Reported %R / RPD	Acceptable (Y/N)
$\frac{D_{12}}{D_{12}} \times 100 \text{ Where, } \overset{S}{=} \\ \begin{array}{c c} \text{Diplicate sample concentration} \\ \hline D_{12} \times 100 \text{ Where, } \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Where, } \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Where, } \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Where, } \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Where, } \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Where, } \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Where, } \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Where, } & \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Where, } & \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Where, } & \overset{S}{=} \\ \hline D_{12} \times 100 \text{ Withere sample } \\ \hline U_{12} \times 100  Withere$	$\begin{array}{c ccccccc} \hline D_{12} & \text{X 100 Where,} & S = \\ \hline D_{12} & \text{Value,} & D_{12} & \text{Consentration} \\ \hline D_{12} & \text{True / D} & \hline True / D & \hline True / $	x 100 Where, S = Original sample Duplicate samp Type of Analysis Element (un Laboratory control sample	a concentration le concentration d / S True / D (units) (b, o)		Reported %R / RPD	Acceptable (Y/N)
Sample ID         Type of Analysis         Element         Found / S         True / D         Reclicitated         Reported         Reported         Reported         Receptable           LLS         Laboratory control sample         Left         [3:1]         (units)         True / D         %R, RPD         %R, RPD         Acceptable         (m)           LLS         Laboratory control sample         Left         [3:1]         [1]         [1]         %R         RPD         %R, RPD         %R, RPD         (m)         (m)           LLS         Laboratory control sample         Left         [3:1]         [4]         [4]         [7]	a)         The characteristic formation         True / D         Relatiouited         Reported         Resoluted         Reported         Resoluted         Reported         Resoluted         Resoluted <td>Type of Analysis Element Laboratory control sample</td> <td></td> <td>Recalculated %R / RPD</td> <td>Reported %R / RPD</td> <td>Acceptable (Y/N)</td>	Type of Analysis Element Laboratory control sample		Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LessLaboratory control sampleLetTTTTTLessMatrix spike sampleLetRRRRTTINatix spike sampleIIIRRRRTIDuplicate sampleIIIIRRRRIDuplicate sampleIIIIRRRRIDuplicate sampleIIIIRRRRIDuplicate sampleIIIIIRRRIDuplicate sampleIIIIIKRRIDuplicate sampleIIIIKRRRIDuplicate sampleIIIIKRRRIDuplicate sampleIIIIKRRRIDuplicate sampleIIIIKRRRIDuplicate sampleIIIIKRRRIDuplicate sampleIIIIKRRRIDuplicate sampleIIIIIKRRIDuplicate sampleIIIIIIKRIDuplicate sampleII	Latoratory control sample $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ Matrix spike sample $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ (SSR-SR) $(h, \mathcal{L})$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ Matrix spike sample $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ $(SSR-SR)$ $(h, \mathcal{L})$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ Duplicate sample $\mathcal{L}$ $(\mathcal{L}, \mathcal{L})$ $(h, \mathcal{L})$ $(h, \mathcal{L})$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ Duplicate sample $\mathcal{L}$ $(\mathcal{L}, \mathcal{L})$ $(h, \mathcal{L})$ $(h, \mathcal{L})$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ Duplicate sample $\mathcal{L}$ $(h, \mathcal{L})$ $(h, \mathcal{L})$ $(h, \mathcal{L})$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ Duplicate sample $\mathcal{L}$ $(h, \mathcal{L})$ $(h, \mathcal{L})$ $(h, \mathcal{L})$ $\mathcal{L}_{\mathcal{L}}\mathcal{L}$ Duplicate sample $\mathcal{L}$ $(h, \mathcal{L})$ $(h, \mathcal{L})$ $(h, \mathcal{L})$ $\mathcal{L}$	Laboratory control sample		Ÿ		
Matrix spike sample     Matrix spike sample     (SSR-SR)       R $[H, 3]$ $[H, 3]$ $[H, 4]$ $[H, 3]$ P     Duplicate sample $[H, 3]$ $[H, 3]$ $[H, 4]$ P     Duplicate sample $[H, 3]$ $[H, 4]$ $[H, 4]$ P     State $[H, 3]$ $[H, 4]$ $[H, 4]$ State     State $[H, 3]$ $[H, 4]$ $[H, 4]$	Retric splike sample     Matrix splike sample     (SSR-SR) $(1, 2)$ $16, 4$ $87$ $(1, 3)$ $14, 31$ $14, 4$ $(1, 3)$ $14, 51$ $14, 4$ $(1, 3)$ $14, 51$ $14, 4$ $(1, 3)$ $14, 51$ $14, 4$ $(14, 31)$ $14, 4$ $e, 4$ $(14, 31)$ $14, 4$ $(14, 31)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $14, 4$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$ $(14, 51)$			15	95	≻.
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{cases} \begin{array}{c c} & Duplicate sample \\ & Duplicate sample \\ \end{array} \\ \hline \\ & \\ \end{array} \\ \hline \\ \\ & \\ \end{array} \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$			KJ	81	
s: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated	s: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated	->		o,4		75
		Refer to appropriate worksheet for list of qualifications and	l associated samples when re	ported results do no	ot agree within 10.0%	% of the recalculat

• . --

LDC #: 1956 06 SDG #: <u>see we</u> VALIDATION FINDINGS WORKSHEET Page: Sample Calculation Verification **Reviewer:** 2nd reviewer: METHOD: Inorganics, Method 7/96A Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A". Have results been reported and calculated correctly? Y) N N/A X N N/A Are results within the calibrated range of the instruments? XON N/A Are all detection limits below the CRQL? ,3 reported with a positive detect were Compound (analyte) results for recalculated and verified using the following equation: Concentration = Generation = Recalculation:  $W^{4} = - \frac{4m^{-3} \cdot 9 \cdot 110^{-5} \times \text{ Find Mum}}{0.7592 \times 1.759 \times 0.975} \times \text{Some}$   $W^{4} = - \frac{4m^{-3} \cdot 9 \cdot 110^{-5} \times \text{Find Mum}}{0.7592 \times 1.759 \times 0.975}$ = 0,322 mg/mg Calculated Reported Concentration Concentration Acceptable (Y/N)Analyte # Sample ID (mg/me) ( Wight) 0 32 Cy6+ 3 Wot 0.28 0.28 2

Note:

RECALC.6

# LDC Report# 17561E6

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# Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
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Collection Date: September 10, 2007

LDC Report Date: October 15, 2007

Matrix: Water

Parameters: Hexavalent Chromium & Chlorite

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): IQI0760

# Sample Identification

RINSATE 3 RINSATE 3MS RINSATE 3MSD

# Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.1 for Chlorite and EPA SW 846 Method 7196A for Hexavalent Chromium.

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 X.

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 were met.

# b. Calibration Verification

Calibration verification frequency and analysis criteria were met.

### III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium or chlorite was found in the initial, continuing and preparation blanks.

Sample "RINSATE 3" was identified as a rinsate. No hexavalent chromium or chlorite was found in this blank.

# IV. Surrogate Spikes

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

# V. 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.

# VI. Duplicates

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

# VII. Laboratory Control Samples

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

# VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

# IX. Overall Assessment of Data

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

# X. Field Duplicates

No field duplicates were identified in this SDG.

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium & Chlorite - Data Qualification Summary - SDG IQI0760

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium & Chlorite - Laboratory Blank Data Qualification Summary -SDG IQI0760

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium & Chlorite - Field Blank Data Qualification Summary - SDG IQI0760

No Sample Data Qualified in this SDG

### VALIDATION COMPLETENESS WORKSHEET Level III

Date:_	10/11/0y
Page:_	
Reviewer:	- Á
2nd Reviewer:_	

METHOD: Chlorite (EPA Method 300.1), Hexavalent Chromium (EPA SW846 Method 7196A)

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
١.	Technical holding times	A	Sampling dates: 9/10/04
lla.	Initial calibration	A	and the second
llb.	Calibration verification	À	
III.	Blanks	A	
IV	Matrix Spike/Matrix Spike Duplicates	A	245/450
V	Duplicates	l l	2. /
VI.	Laboratory control samples	A	Ley
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	Ň	
x	Field blanks	NO	R=35

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:

LDC #: 17561E6

SDG #: IQI0760

Laboratory: Test America

Rinsate 3	11	21	31	
Rinsate 3MS	12	22	32	
Rinsate 3MSD	13	23	33	
MB	14	24	34	
	15	25	35	
j	16	26	36	
	17	27	37	
	18	28	38	
	19	29	39	
0	20	30	40	

LDC #: 1756 76 SDG #:\_\_\_\_\_

# VALIDATION FINDINGS WORKSHEET Sample Specific Analysis Reference

Page: \_\_\_\_\_of \_\_\_\_ Reviewer: \_\_\_\_\_\_ 2nd reviewer: \_\_\_\_\_

All circled methods are applicable to each sample.

Sample ID	Parameter
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CRO (CHIM (4)
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC CR <sup><math>+</math></sup>
n213	ph TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC (CR <sup>3</sup> )
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC $CR^{\circ+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>.</sup> NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\circ</math></sup> NH <sub>3</sub> TKN TOC CR <sup><math>\circ+</math></sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>*</sup> NH <sub>3</sub> TKN TOC CR <sup>5+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC CR <sup>5+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $CR^{6+}$
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	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC $CR^{6+}$
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN' NH3 TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO₃ NO₂ SO₄ PO₄ ALK CN NH₃ TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO₃ NO₂ SO₄ PO₄ ALK CN NH₃ TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO₃ NO₂ SO₄ PO₄ ALK CN' NH₃ TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO3 NO2 SO4 PO4 ALK CN NH3 TKN TOC CR8+
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup><math>\circ</math></sup> NH <sub>3</sub> TKN TOC CR <sup><math>\circ+</math></sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN NH <sub>3</sub> TKN TOC CR <sup>6+</sup>
	pH TDS CI F NO <sub>2</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup>

17)

Comments:\_\_\_\_\_

# LDC Report# 17561F6

# Laboratory Data Consultants, Inc. **Data Validation Report**

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
Collection Date:	September 10, 2007

Soil

LDC Report Date: October 18, 2007

Matrix:

Parameters: Hexavalent Chromium

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): IQI0951

# Sample Identification

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

# Introduction

This data review covers 17 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196A for Hexavalent Chromium.

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 were met.

# b. Calibration Verification

Calibration verification frequency and analysis criteria were met.

# III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium was found in the initial, continuing and preparation blanks.

Sample "RINSATE 3" (from SDG IQI0760) was identified as a rinsate. No hexavalent chromium was found in this blank.

# IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

# V. Duplicates

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

# 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-BR-04-0 and TSB-BR-04-0-(FD) were identified as field duplicates. No hexavalent chromium was detected in any of the samples.

# BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Data Qualification Summary - SDG IQI0951

No Sample Data Qualified in this SDG

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BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG IQI0951

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Field Biank Data Qualification Summary - SDG IQI0951

No Sample Data Qualified in this SDG

LDC #: <u>17561F6</u> SDG #: <u>IQI0951</u> Laboratory: <u>Test America</u>

### VALIDATION COMPLETENESS WORKSHEET Level III

Date:	10/11/01
	of/
Reviewer:	buj
2nd Reviewer:	

METHOD: Hexavalent Chromium (EPA SW846 Method 7196A)

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
Ι.	Technical holding times	A	Sampling dates: 9/10/07
lla.	Initial calibration	A	
llb.	Calibration verification	Å	
111.	Blanks	A-	
IV	Matrix Spike/Matrix Spike Duplicates	A	3 1M5/11420
V	Duplicates	N	2
VI.	Laboratory control samples	A	reg
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	• • • • • • • • • • • • • • • • • • • •
IX.	Field duplicates	MO	(3,4)
x	Field blanks	ND	R=Rinsate 3 (IAI0760)

Note:

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

Validated Samples:

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

Notes:

# LDC Report# 17561G6

# Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name:	BRC Parcel 4A/4B Sampling Event
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Collection Date: September 10, 2007

LDC Report Date: October 15, 2007

Matrix: Soil

Parameters: Chlorite

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): IQI1087

## Sample Identification

TSB-BJ-03-0 TSB-BJ-03-0(FD) TSB-BJ-03-10 TSB-BJ-03-0MS TSB-BJ-03-0MSD

### Introduction

This data review covers 5 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.1 modified for Chlorite.

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 X.

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 were met.

## b. Calibration Verification

Calibration verification frequency and analysis criteria were met.

## III. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorite was found in the initial, continuing and preparation blanks.

Sample "RINSATE 3" (from SDG IQI0760) was identified as a rinsate. No chlorite was found in this blank.

## IV. Surrogate Spikes

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

## V. 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.

## VI. Duplicates

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

## VII. Laboratory Control Samples

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

## VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

# IX. Overall Assessment of Data

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

# X. Field Duplicates

Samples TSB-BJ-03-0 and TSB-BJ-03-0(FD) were identified as field duplicates. No chlorite was detected in any of the samples.

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## BRC Parcel 4A/4B Sampling Event Chlorite - Data Qualification Summary - SDG IQI1087

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Chlorite - Laboratory Blank Data Qualification Summary - SDG IQI1087

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Chlorite - Field Blank Data Qualification Summary - SDG IQI1087

No Sample Data Qualified in this SDG

VALIDATION COMPLETENESS WORKSHEE
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Level III

Date:	1.	1	٥ŋ
Page:_	10	of_	$I^{\prime}$
Reviewer:	<u></u> 'u	m	/
2nd Reviewer:		L	_
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METHOD: Chlorite (EPA Method 300.1) $\mathcal{M}$ ,  $\mathcal{J}$  -

LDC #: 17561G6

SDG #: IQI1087 Laboratory: Test America

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

	Validation Area		-		Com	ments		
I.	Technical holding times	· · · · ·	K	Sampling dates:	9/10/07			
lla.	Initial calibration		A .					
llb.	Calibration verification		A	5		an manangan ang kang pengangan kenang ka		an 1
III.	Blanks		4			·····	a ato cho antona ta conserva a conserva a	
IV	Matrix Spike/Matrix Spik	ke Duplicates	A A	) HS/MGD	· · · · · · · · · · · · · · · · · · ·			
V	Duplicates		N			al a contractor a c	ana tang sa sa sa sa sa sa	
VI.	Laboratory control samp	ples	A	Les				
VII.	Sample result verification	on	Ň					
VIII.	Overall assessment of c	data	A	· · · · · · · · · · · · · · · · · · ·			na mana na kaonina amin'ny fi	
IX.	Field duplicates		M	(1,2)			n na manganga mangan mangan mangangan kang sa	
				h	1.0.0.1		~	
X	A = Acceptable N = Not provided/applic SW = See worksheet	able R	ID = No compound R = Rinsate B = Field blank		<u>SaT22 S</u> D = Duplicate TB = Trip blank EB = Equipment bla	<u>IOI0760</u> ank		
	A = Acceptable N = Not provided/applic	able R	ID = No compound R = Rinsate	s detected	D = Duplicate TB = Trip blank	· · · · · · · · · · · · · · · · · · ·	<b>.</b>	
alidate	A = Acceptable N = Not provided/applic SW = See worksheet	able R	ID = No compound R = Rinsate	s detected	D = Duplicate TB = Trip blank	· · · · · · · · · · · · · · · · · · ·	<u> </u>	
alidate	A = Acceptable N = Not provided/applic SW = See worksheet d Samples: ζος	cable R F	ID = No compound R = Rinsate	s detected	D = Duplicate TB = Trip blank	ank	<b>.</b>	
	A = Acceptable N = Not provided/applic SW = See worksheet d Samples:  CSB-BJ-03-0	able R F	ID = No compound R = Rinsate	s detected	D = Duplicate TB = Trip blank	ank 31	<b></b>	
	A = Acceptable N = Not provided/applic SW = See worksheet d Samples: <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	2able R F 11 12	ID = No compound R = Rinsate	s detected	D = Duplicate TB = Trip blank	ank 31 32	<u> </u>	
	A = Acceptable N = Not provided/applic SW = See worksheet d Samples: <u>40</u> ỹ ISB-BJ-03-0 ISB-BJ-03-0(FD)	2able R F 11 12 13	ID = No compound R = Rinsate	21 22 23	D = Duplicate TB = Trip blank	ank 31 32 33	<b></b>	
alidate	A = Acceptable N = Not provided/applic SW = See worksheet d Samples: $\zeta_0$ , ) TSB-BJ-03-0 TSB-BJ-03-0(FD) TSB-BJ-03-10 TSB-BJ-03-0MS	Cable         R           11         F           12         13           14         14	ID = No compound R = Rinsate	21 22 23 24	D = Duplicate TB = Trip blank	ank 31 32 33 34	<b></b>	
alidate	A = Acceptable N = Not provided/applic SW = See worksheet d Samples: <u>40 ř</u> ISB-BJ-03-0 ISB-BJ-03-0(FD) ISB-BJ-03-0(FD) ISB-BJ-03-0MS ISB-BJ-03-0MS	Cable         R           11         F           12         13           14         15	ID = No compound R = Rinsate	21 22 23 24 25	D = Duplicate TB = Trip blank	ank 31 32 33 34 35		
	A = Acceptable N = Not provided/applic SW = See worksheet d Samples: <u>40 ř</u> ISB-BJ-03-0 ISB-BJ-03-0(FD) ISB-BJ-03-0(FD) ISB-BJ-03-0MS ISB-BJ-03-0MS	Cable         R           11         F           12         13           14         15           16         F	ID = No compound R = Rinsate	s detected 21 22 23 24 25 26	D = Duplicate TB = Trip blank	ank 31 32 33 34 35 36	<b>y</b>	
alidate	A = Acceptable N = Not provided/applic SW = See worksheet d Samples: <u>40 ř</u> ISB-BJ-03-0 ISB-BJ-03-0(FD) ISB-BJ-03-0(FD) ISB-BJ-03-0MS ISB-BJ-03-0MS	Cable         R           11         F           12         13           13         14           15         16           17         17	ID = No compound R = Rinsate	s detected 21 22 23 24 25 26 27	D = Duplicate TB = Trip blank	ank 31 32 33 34 35 36 37		

# LDC Report# 17561H6

# Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: B	3RC Parcel 4A/4B	Sampling Event
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Collection Date: September 7, 2007

Soil

LDC Report Date: October 15, 2007

Matrix:

Parameters: Hexavalent Chromium

Validation Level: EPA Level III

Laboratory: TestAmerica, Inc.

# Sample Delivery Group (SDG): IQI1139

### Sample Identification

**TSB-AR-06-0** TSB-AR-06-0-DUP TSB-AR-06-10 TSB-AJ-01-0 TSB-AJ-01-10 TSB-AJ-02-0 TSB-AJ-02-0-DUP TSB-AJ-02-10 TSB-AJ-03-0 TSB-AJ-03-10 TSB-BJ-06-0 TSB-BJ-06-10 TSB-BJ-01-0 TSB-BJ-01-10 TSB-BJ-02-0 TSB-BJ-02-10 **TSB-BR-06-0** TSB-BR-06-10 TSB-AR-06-10MS TSB-AR-06-10MSD

### Introduction

This data review covers 20 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196A for Hexavalent Chromium.

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 were met.

## **b.** Calibration Verification

Calibration verification frequency and analysis criteria were met.

### III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium was found in the initial, continuing and preparation blanks.

Sample "RINSATE 2" (from SDG IQI0416) was identified as a rinsate. No hexavalent chromium was found in this blank.

## IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## V. Duplicates

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

## 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-AR-06-0 and TSB-AR-06-0-DUP and samples TSB-AJ-02-0 and TSB-AJ-02-0-DUP were identified as field duplicates. No hexavalent chromium was detected in any of the samples with the following exceptions:

	Concentration (mg/Kg)		D		
Analyte	TSB-AR-06-0	TSB-AR-06-0-DUP	Difference (Limits)	Flag	A or P
Hexavalent chromium	0.20	0.31	0.11 (≤1.0)	-	-

	Concentration (mg/Kg)		Difference		
Analyte	TSB-AJ-02-0	TSB-AJ-02-0-DUP	Difference (Limits)	Flag	A or P
Hexavalent chromium	0.16U	0.25	0.09 (≤1.0)	-	-

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Data Qualification Summary - SDG IQI1139

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG IQI1139

No Sample Data Qualified in this SDG

BRC Parcel 4A/4B Sampling Event Hexavalent Chromium - Field Blank Data Qualification Summary - SDG IQI1139

No Sample Data Qualified in this SDG

LDC #:_	17561H6	Valida'	TION COMP
SDG #:	IQI1139		L

Laboratory: Test America

# LETENESS WORKSHEET

Level III

	Date:	10/v	Jay
	Page:_	of_	/
	Reviewer:	$\dot{\mathbf{u}}$	_
2nd	Reviewer:	Û	/

METHOD: Hexavalent Chromium (EPA SW846 Method 7196A)

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
Ι.	Technical holding times	A	Sampling dates: 9/7/*7
lla.	Initial calibration	Á	······
llb.	Calibration verification	4	
HI.	Blanks	Å	
IV	Matrix Spike/Matrix Spike Duplicates	A	) fustion
V	Duplicates	$(\mathbf{p}, \mathbf{p}) \in \mathcal{P}_{\mathbf{p}}$	a a construir de la construir d
VI.	Laboratory control samples	A	Lug
VII.	Sample result verification	N	
VIII.	Overall assessment of data	- A	
IX.	Field duplicates	SV/	(1, 2), (6, 7)
X	Field blanks		R= RINSATE 2 ( IOI 0416)

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: 人。)

	/						
1	TSB-AR-06-0	11	TSB-BJ-06-0	21	MB	31	
2	TSB-AR-06-0-DUP	12	TSB-BJ-06-10	22	-	32	
3	TSB-AR-06-10	13	TSB-BJ-04-0	23		33	
4	TSB-AJ-01-0	14	TSB-BJ-01-10	24		34	
5	TSB-AJ-01-10	15	TSB-BJ-02-0	25		35	
6	TSB-AJ-02-0	16	TSB-BJ-02-10	26		36	
7	TSB-AJ-02-0-DUP	17	TSB-BR-06-0	27		37	
8	TSB-AJ-02-10	18	TSB-BR-06-10	28		38	
9	TSB-AJ-03-0	19	TSB-AR-06-10MS	29		39	
10	TSB-AJ-03-10	20	TSB-AR-06-10MSD	30		40	

Notes:

LDC#:<u>17561H6</u> SDG#:<u>See Cover</u>

### VALIDATION FINDINGS WORKSHEET Field Duplicates

Page: <u>l</u>of <u>/</u> Reviewer: <u>twy</u> 2nd Reviewer: <u>k</u>

Inorganics, Method 7196A

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

	Concentration (mg/Kg)					
Analyte	1	2	RPD (≤50)	Difference	Limits	Qualification (Parent only)
Cr (VI)	0.20	0.31		0.11	(≤1.0)	

	Concentration (mg/Kg)			-		0.115.11
Analyte	6	7	RPD (≤50)	Difference	Limits	Qualification (Parent only)
Cr (VI)	0.16U	0.25		0.09	(≤1.0)	

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