ATTACHMENT 2: DATA VALIDATION REPORTS

This attachment contains the data validation reports performed by an independent subcontractor, Laboratory Data Consultants, Inc. (LDC), of Carlsbad, California.

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Tidewater, Inc.
199 Shell Street
Manhattan Beach, CA 90266
ATTN: Mr. David Conner

June 9, 2015

SUBJECT: NASA JPL, 2Q2015, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on May 21, 2015. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #34336:

SDG #	Fraction
15-09442, 15-09577	Volatiles, 1,4-Dioxane, Metals, Wet Chemistry

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

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

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

Sincerely,

Pei Geng

Pei Geng
Project Manager/Senior Chemist

HC

Attachment 1

90/10 (client select)

LDC #34336 (Tidewater- Manhattan Beach, CA / NASA JPL, 2Q2015)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		1,4-Dioxane (8270C)		Metals (200.7 /200.8)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_2-N (353.2)		Cr(VI) (7196)		O-PO_4 (365.1)		CLO_4 (314.0)		pH (150.1)		TDS (150.1)													
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	15-09442	05/21/15	06/12/15	13	0	-	-	12	0	12	0	12	0	12	0	12	0	1	0	12	0	12	0	12	0												
A	15-09442	05/21/15	06/12/15	12	0	-	-	11	0	11	0	11	0	11	0	11	0	0	0	11	0	11	0	11	0												
B	15-09577	05/21/15	06/12/15	13	0	2	0	12	0	12	0	12	0	12	0	12	0	1	0	12	0	12	0	12	0												
Total	T/PG			27	0	2	0	25	0	25	0	25	0	25	0	25	0	2	0	25	0	25	0	25	0	0	0	0	0	0	0	0	0	0	0	0	231

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

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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 4, 2015

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09442

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-1-4/20/15	1509442-01	Water	04/20/15
SB-1-4/20/15	1509442-02	Water	04/20/15
EB-1-4/20/15	1509442-03	Water	04/20/15
MW-11-5	1509442-04	Water	04/20/15
MW-11-4	1509442-05	Water	04/20/15
MW-11-3	1509442-06	Water	04/20/15
MW-11-2**	1509442-07**	Water	04/20/15
MW-11-1	1509442-08	Water	04/20/15
MW-14-5	1509442-09	Water	04/20/15
MW-14-4	1509442-10	Water	04/20/15
MW-14-3	1509442-11	Water	04/20/15
MW-14-2	1509442-12	Water	04/20/15
MW-14-1	1509442-13	Water	04/20/15
DUP-1-2Q15	1509442-14	Water	04/20/15
MW-11-3MS	1509442-06MS	Water	04/20/15
MW-11-3MSD	1509442-06MSD	Water	04/20/15

**Indicates sample underwent EPA Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

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 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/21/15 (1506327)	Bromomethane	40.5	All samples in SDG 15-09442	UJ (all non-detects)	P
04/21/15 (1506327)	Methyl iodide	37.4	All samples in SDG 15-09442	UJ (all non-detects)	P

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-1-4/20/15 was identified as a trip blank. No contaminants were found.

Sample EB-1-4/20/15 was identified as an equipment blank. No contaminants were found.

Sample SB-1-4/20/15 was identified as a source blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples MW-14-3 and DUP-1-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-14-3	DUP-1-2Q15	
Chloroform	0.51	0.52	2
1,2-Dichlorobenzene	0.090	0.11	20
1,1-Dichloroethane	0.33	0.36	9
cis-1,2-Dichloroethene	0.17	0.20	16
Tetrachloroethene	0.70	0.82	16
1,2,3-Trichlorobenzene	0.25	0.26	4
Trichloroethene	1.5	1.5	0

XI. Internal Standards

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

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D, data were qualified as estimated in fourteen samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (UJ) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Volatiles - Data Qualification Summary - SDG 15-09442

Sample	Compound	Flag	A or P	Reason
TB-1-4/20/15 SB-1-4/20/15 EB-1-4/20/15 MW-11-5 MW-11-4 MW-11-3 MW-11-2** MW-11-1 MW-14-5 MW-14-4 MW-14-3 MW-14-2 MW-14-1 DUP-1-2Q15	Bromomethane Methyl iodide	UJ (all non-detects) UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL, 2Q2015
Volatiles - Laboratory Blank Data Qualification Summary - SDG 15-09442

No Sample Data Qualified in this SDG

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-1-4/20/15

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-01	File ID:	21APR12.D
Sampled:	04/20/15 06:30	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 11:40
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/8/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-1-4/20/15

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-01	File ID:	21APR12.D
Sampled:	04/20/15 06:30	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 11:40
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/8/15

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Environmental Testing Laboratory Since 1949

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-1-4/20/15

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-01	File ID:	21APR12.D
Sampled:	04/20/15 06:30	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 11:40
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.4400	94.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.150	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.210	102	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	214805	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	83072	9.73	87358	9.72	
1,4-Difluorobenzene (IS)	336149	7.52	332735	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

SB-1-4/20/15

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-02	File ID:	21APR13.D
Sampled:	04/20/15 06:50	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 12:02
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

SB-1-4/20/15

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-02	File ID:	21APR13.D
Sampled:	04/20/15 06:50	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 12:02
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

SB-1-4/20/15

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-02	File ID:	21APR13.D
Sampled:	04/20/15 06:50	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 12:02
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3800	93.8	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.130	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6400	96.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	219994	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	86304	9.72	87358	9.72	
1,4-Difluorobenzene (IS)	328766	7.52	332735	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-1-4/20/15

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-03	File ID:	21APR14.D
Sampled:	04/20/15 07:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 12:25
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-1-4/20/15

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-03	File ID:	21APR14.D
Sampled:	04/20/15 07:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 12:25
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-1-4/20/15

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-03	File ID:	21APR14.D
Sampled:	04/20/15 07:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 12:25
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3700	93.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.070	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6100	96.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	218380	6.73	216930	6.74	
Chlorobenzene-d5 (IS)	87353	9.73	87358	9.72	
1,4-Difluorobenzene (IS)	331251	7.52	332735	7.52	

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Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-5

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-04	File ID:	21APR15.D
Sampled:	04/20/15 07:40	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 12:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1639	Sequence:	1506327	Calibration:	1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U NJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-5

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-04	File ID:	21APR15.D
Sampled:	04/20/15 07:40	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 12:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.15	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/8/15 q

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-5

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-04	File ID:	21APR15.D
Sampled:	04/20/15 07:40	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 12:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6700	96.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.110	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8100	98.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	214256	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	85988	9.73	87358	9.72	
1,4-Difluorobenzene (IS)	329072	7.52	332735	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-4

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-05	File ID:	21APR16.D
Sampled:	04/20/15 08:20	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 13:11
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U U5
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-4

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-05	File ID:	21APR16.D
Sampled:	04/20/15 08:20	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 13:11
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.19	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-4

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-05	File ID:	21APR16.D
Sampled:	04/20/15 08:20	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 13:11
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.53	J
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7700	97.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7700	97.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	212270	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	85647	9.73	87358	9.72	
1,4-Difluorobenzene (IS)	332290	7.52	332735	7.52	

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Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-3

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-06	File ID:	21APR06.D
Sampled:	04/20/15 08:55	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 09:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1639	Sequence:	1506327	Calibration:	1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.19	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-3

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-06	File ID:	21APR06.D
Sampled:	04/20/15 08:55	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 09:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.11	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.11	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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3761 Attucks Drive
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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-3

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-06	File ID:	21APR06.D
Sampled:	04/20/15 08:55	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 09:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.4700	94.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9400	99.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9700	99.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	213172	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	84033	9.72	87358	9.72	
1,4-Difluorobenzene (IS)	332761	7.52	332735	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-2

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-07	File ID:	21APR17.D
Sampled:	04/20/15 09:30	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 13:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-2

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-07	File ID:	21APR17.D
Sampled:	04/20/15 09:30	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 13:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1639	Sequence: 1506327	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.080	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-2

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-07	File ID:	21APR17.D
Sampled:	04/20/15 09:30	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 13:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U NJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8500	98.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.150	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7000	97.0	80 - 120	

INTERNAL STANDARD	ARFA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	214686	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	84654	9.73	87358	9.72	
1,4-Difluorobenzene (IS)	332690	7.52	332735	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-1

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-08	File ID:	21APR18.D
Sampled:	04/20/15 10:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 13:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U KS
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/8/15 [illegible]

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-1

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-08	File ID:	21APR18.D
Sampled:	04/20/15 10:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 13:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.17	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-1

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-08	File ID:	21APR18.D
Sampled:	04/20/15 10:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 13:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1639	Sequence: 1506327	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3700	93.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.120	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1500	91.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	219127	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	88044	9.73	87358	9.72	
1,4-Difluorobenzene (IS)	331218	7.52	332735	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-5

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-09	File ID:	21APR19.D
Sampled:	04/20/15 11:20	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 14:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1639	Sequence: 1506327	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.27	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-5

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-09	File ID:	21APR19.D
Sampled:	04/20/15 11:20	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 14:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/8/15 [illegible]

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-5

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-09	File ID:	21APR19.D
Sampled:	04/20/15 11:20	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 14:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U MT
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.2900	92.9	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.070	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8400	98.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF ARFA	REF RT	Q
Pentafluorobenzene (IS)	218953	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	84392	9.72	87358	9.72	
1,4-Difluorobenzene (IS)	332037	7.52	332735	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-4

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-10	File ID:	21APR20.D
Sampled:	04/20/15 12:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 14:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.13	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.080	J
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-4

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-10	File ID:	21APR20.D
Sampled:	04/20/15 12:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 14:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.16	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-4

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-10	File ID:	21APR20.D
Sampled:	04/20/15 12:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 14:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5700	95.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9100	99.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.000	100	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	216165	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	81284	9.72	87358	9.72	
1,4-Difluorobenzene (IS)	327240	7.52	332735	7.52	

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHFET
EPA-524.2

MW-14-3

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-11	File ID:	21APR21.D
Sampled:	04/20/15 12:40	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 15:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.51	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.090	J
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.33	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.17	J
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-3

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-11	File ID:	21APR21.D
Sampled:	04/20/15 12:40	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 15:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1639	Sequence: 1506327	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.70	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.25	J
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.5	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-3

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-11	File ID:	21APR21.D
Sampled:	04/20/15 12:40	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 15:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5800	95.8	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9300	99.3	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8400	98.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	212434	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	86770	9.72	87358	9.72	
1,4-Difluorobenzene (IS)	333097	7.52	332735	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-2

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-12	File ID:	21APR22.D
Sampled:	04/20/15 13:20	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 15:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.65	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.18	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.22	J
156-60-5	trans-1,2-Dichloroethene	1	0.16	J
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Diehloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-2

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-12	File ID:	21APR22.D
Sampled:	04/20/15 13:20	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 15:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.59	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	3.9	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/8/15 D.

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-2

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1509442-12		File ID:	21APR22.D
Sampled:	04/20/15 13:20	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 15:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1639	Sequence: 1506327	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5300	95.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2800	92.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	214033	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	87877	9.73	87358	9.72	
1,4-Difluorobenzene (IS)	326912	7.52	332735	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHFET
EPA-524.2

MW-14-1

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-13	File ID:	21APR23.D
Sampled:	04/20/15 14:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 15:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1639	Sequence: 1506327	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.43	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-1

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-13	File ID:	21APR23.D
Sampled:	04/20/15 14:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 15:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.19	J
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.14	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.1	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/8/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-1

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-13	File ID:	21APR23.D
Sampled:	04/20/15 14:00	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 15:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1639	Sequence: 1506327	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.4700	94.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.020	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7700	97.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	215582	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	84227	9.73	87358	9.72	
1,4-Difluorobenzene (IS)	327056	7.52	332735	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-1-2Q15

Laboratory:	BC Laboratories			SDG:	15-09442
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509442-14	File ID:	21APR24.D
Sampled:	04/20/15 12:50	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 16:12
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.52	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.11	J
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.36	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.20	J
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-1-2Q15

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-14	File ID:	21APR24.D
Sampled:	04/20/15 12:50	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 16:12
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.82	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.26	J
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.5	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/8/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:10:46PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-1-2Q15

Laboratory:	BC Laboratories		SDG:	15-09442	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509442-14	File ID:	21APR24.D
Sampled:	04/20/15 12:50	Prepared:	04/21/15 07:00	Analyzed:	04/21/15 16:12
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1639 Sequence: 1506327 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U NS
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5300	95.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.060	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5900	95.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	218052	6.74	216930	6.74	
Chlorobenzene-d5 (IS)	87201	9.73	87358	9.72	
1,4-Difluorobenzene (IS)	326364	7.52	332735	7.52	

6/8/15 R

LDC #: 34336A1

SDG #: 15-09442

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-2-15

Page: 1 of 2

Reviewer:

2nd Reviewer:

METHOD: GC/MS Volatiles (EPA Method 524.2)

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.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	≤ 20, r² /≤30
IV.	Continuing calibration	SW	≤30
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB=1 ; EB=3 ; SB=2
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D=11+14
XI.	Internal standards	A	
XII.	Compound quantitation RL/~~LOQ/LODs~~	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	TB-1-4/20/15	1509442-01	Water	04/20/15
2	SB-1-4/20/15	1509442-02	Water	04/20/15
3	EB-1-4/20/15	1509442-03	Water	04/20/15
4	MW-11-5	1509442-04	Water	04/20/15
5	MW-11-4	1509442-05	Water	04/20/15
6	MW-11-3	1509442-06	Water	04/20/15
7	MW-11-2**	1509442-07**	Water	04/20/15
8	MW-11-1	1509442-08	Water	04/20/15
9	MW-14-5	1509442-09	Water	04/20/15
10	MW-14-4	1509442-10	Water	04/20/15
11	MW-14-3	1509442-11	Water	04/20/15
12	MW-14-2	1509442-12	Water	04/20/15
13	MW-14-1	1509442-13	Water	04/20/15

LDC #: 34336A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-2-15

SDG #: 15-09442 Level III/IV Page: 2 of 2

Laboratory: BC Laboratories, Inc. Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA Method 524.2)

	Client ID	Lab ID	Matrix	Date
14	DUP-1-2Q15	1509442-14	Water	04/20/15
15	MW-11-3MS	1509442-06MS	Water	04/20/15
16	MW-11-3MSD	1509442-06MSD	Water	04/20/15
17				
18				
19				
20				
21				

Notes:

	BYD1639-BLK1						

LDC #: 34336M

VALIDATION FINDINGS CHECKLIST

Reviewer: 9R
2nd Reviewer: 9

Method: Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 34336M

VALIDATION FINDINGS CHECKLIST

Reviewer:
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within +/-40% from the associated calibration standard?	✓			
Were retention times within - 30% of the last continuing calibration or +/- 50% of the initial calibration?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

TARGET COMPOUND WORKSHEET

METHOD: VOA

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

LDC #: B4336A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS VOA (EPA Method 524.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	04/21/15	1506327-CCV1	B	40.5	all	J/UJ/P (NB)
	↓	1506327-CCV2	PPPP	37.4	↓	↓ ↓

CONCAL.1S5

LDC #: 34336A1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

Compound	Concentration (µg/L)		RPD
	11	14	
K	0.51	0.52	2
JJJ	0.090	0.11	20
I	0.33	0.36	9
QQQ	0.17	0.20	16
AA	0.70	0.82	16
NNN	0.25	0.26	4
S	1.5	1.5	Ø

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 34336A1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

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

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (3rd std)	Recalculated RRF (3rd std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	1504017	4/09/15	Benzene (1st Internal Standard)	2.00574	2.00574	1.915909	1.915909	7.242641	7.242639
			Toluene (2nd Internal Standard)	0.78458 16	0.78458 16	0.7564958	0.7564958	12.47006	12.47006
			Styrene (3rd Internal Standard)	3.285449	3.285449	2.9535568	2.9535568	12.55207	12.552006
2	1504017	04/10/15	Acetone (1st Internal Standard)	$4.143118e^{-2}$	$4.143118e^{-2}$	$4.043636e^{-2}$	$4.043636e^{-2}$	5.719946	5.719937
			2-Hexanone (2nd Internal Standard)	$6.539117e^{-2}$	$6.539117e^{-2}$	$6.147533e^{-2}$	$6.147533e^{-2}$	8.80841	8.808423
			t-1,4-Dichloro-2-butene (3rd Internal Standard)	0.1519529	0.1519529	0.1397942	0.1397942	13.8276	13.8276
3			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						
4			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						

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

LDC #: 34336A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	1506327-CCV1	04/21/15	Benzene (1st Internal Standard)	1.915909	1.972508	1.972508	3.0	3.0
			Toluene (2nd Internal Standard)	0.7564958	0.7491302	0.7491302	1.0	1.0
			Styrene (3rd Internal Standard)	2.953568	3.076104	3.076104	4.1	4.1
2			Acetone (1st Internal Standard)	$4.043636e^{-2}$	$3.783911e^{-2}$	$3.783911e^{-2}$	6.4	6.4
			2-Hexanone (2nd Internal Standard)	$6.147533e^{-2}$	$5.955828e^{-2}$	$5.955828e^{-2}$	3.1	3.1
			t-1,4-Dichloro-2-butene (3rd Internal Standard)	0.1397942	0.1477441	0.1477441	5.7	5.7
3			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					
4			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					

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

LDC #: 34336A1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer:
2nd reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)

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: 7

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10.000	10.150	102	102	Ø
Bromofluorobenzene	↓	9.7000	97.0	97.0	Ø
1,2-Dichlorobenzene-d4	↓	9.8500	98.5	98.5	Ø
Dibromofluoromethane	NA				

Sample ID:

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

Sample ID:

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

Sample ID:

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

LDC #: 34336A1

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

MS/MSD sample: 15/16

Compound	Spike Added (µg/L)		Sample Concentration (µg/L)	Spiked Sample Concentration (µg/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	----	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene	25.000	25.000	ND	26.090	27.170	104	104	109	109	4.06	4.06
Trichloroethene	↓	↓	0.11000	25.980	26.690	103	103	106	106	2.70	2.70
Benzene	↓	↓	ND	24.850	25.920	99.4	99.4	104	104	4.22	4.22
Toluene	↓	↓	ND	24.630	25.320	98.5	98.5	101	101	2.76	2.76
Chlorobenzene	↓	↓	ND	25.200	26.160	101	101	105	105	3.74	3.74

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

LDC #: 34336A1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: BVD1639-BS1

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.000	NA	26.110	NA	104	104				
Trichloroethene	↓		26.340		105	105				
Benzene			25.240		101	101				
Toluene			25.030		100	100				
Chlorobenzene			26.280		105	105				

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

LDC #: 34336A1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
RRF	=	Relative response factor of the calibration standard.
V_o	=	Volume or weight of sample pruged in milliliters (ml) or grams (g).
Df	=	Dilution factor.
%S	=	Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 7 Styrene:

Conc. = $\frac{(1904)(10.00)(1)}{(84654)(2.95388)(1)(\quad)}$

= 0.076150452 ≈ 0.080 µg/L

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

RECALC.1S5

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 2, 2015

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09442

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SB-1-4/20/15	1509442-02	Water	04/20/15
EB-1-4/20/15	1509442-03	Water	04/20/15
MW-11-5	1509442-04	Water	04/20/15
MW-11-4	1509442-05	Water	04/20/15
MW-11-3	1509442-06	Water	04/20/15
MW-11-2**	1509442-07**	Water	04/20/15
MW-11-1	1509442-08	Water	04/20/15
MW-14-5	1509442-09	Water	04/20/15
MW-14-4	1509442-10	Water	04/20/15
MW-14-3	1509442-11	Water	04/20/15
MW-14-2	1509442-12	Water	04/20/15
MW-14-1	1509442-13	Water	04/20/15
DUP-1-2Q15	1509442-14	Water	04/20/15
MW-11-3MS	1509442-06MS	Water	04/20/15
MW-11-3MSD	1509442-06MSD	Water	04/20/15
MW-11-3DUP	1509442-06DUP	Water	04/20/15
MW-14-2MS	1509442-12MS	Water	04/20/15
MW-14-2MSD	1509442-12MSD	Water	04/20/15
MW-14-2DUP	1509442-12DUP	Water	04/20/15
MW-14-1MS	1509442-13MS	Water	04/20/15
MW-14-1MSD	1509442-13MSD	Water	04/20/15
MW-14-1DUP	1509442-13DUP	Water	04/20/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium by Environmental Protection Agency (EPA) Methods 200.7/200.8

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the method(s).

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of ICS analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Iron	33.980 ug/L	MW-14-2 MW-14-1 DUP-1-2Q15
PB (prep blank)	Chromium	1.1240 ug/L	SB-1-4/20/15 EB-1-4/20/15 MW-11-5 MW-11-4 MW-11-3 MW-11-2** MW-11-1 MW-14-5 MW-14-4 MW-14-3

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Iron	28.739 ug/L	SB-1-4/20/15 EB-1-4/20/15 MW-11-5 MW-11-4 MW-11-3 MW-11-2** MW-11-1 MW-14-5 MW-14-4 MW-14-3
ICB/CCB	Chromium	0.8230 ug/L	SB-1-4/20/15 EB-1-4/20/15 MW-11-5 MW-11-4 MW-11-2** MW-11-1 MW-14-5 MW-14-4 MW-14-3
ICB/CCB	Chromium	0.5120 ug/L	MW-11-3
ICB/CCB	Sodium	0.034168 mg/L	MW-14-2 MW-14-1
ICB/CCB	Sodium	0.032214 mg/L	SB-1-4/20/15 MW-11-3
ICB/CCB	Sodium	0.018902 mg/L	EB-1-4/20/15 MW-11-5 MW-11-4 MW-11-2** MW-11-1 MW-14-5 MW-14-4 MW-14-3

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
DUP-1-2Q15	Iron	140 ug/L	140U ug/L
SB-1-4/20/15	Chromium Sodium	0.82 ug/L 0.15 mg/L	0.82U ug/L 0.15U mg/L
EB-1-4/20/15	Chromium	1.2 ug/L	1.2U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-11-5	Chromium	2.4 ug/L	2.4U ug/L
MW-11-4	Chromium	0.81 ug/L	0.81U ug/L
MW-11-3	Chromium Iron	1.1 ug/L 49 ug/L	1.1U ug/L 49U ug/L
MW-11-2**	Chromium	1.9 ug/L	1.9U ug/L
MW-11-1	Chromium	1.1 ug/L	1.1U ug/L
MW-14-5	Chromium Iron	1.6 ug/L 57 ug/L	1.6U ug/L 57U ug/L
MW-14-4	Chromium	3.2 ug/L	3.2U ug/L
MW-14-3	Chromium Iron	1.3 ug/L 38 ug/L	1.3U ug/L 38U ug/L

The absolute value of the contaminant concentrations found in the initial, continuing and preparation blanks were less than the method reporting limit (MRL) with the following exceptions:

Method Blank ID	Analyte	Concentration	MRL	Associated Samples	Flag	A or P
CCB5	Iron	-66.285 ug/L	50.0 ug/L	EB-1-4/20/15 MW-11-5 MW-11-4 MW-11-2** MW-11-1 MW-14-5 MW-14-4 MW-14-3	J (all detects) UJ (all non-detects)	A

VI. Field Blanks

Sample EB-1-4/20/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-1-4/20/15	Chromium Sodium	1.2 ug/L 0.14 mg/L

Sample SB-1-4/20/15 was identified as a source blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
SB-1-4/20/15	Chromium Sodium	0.82 ug/L 0.15 mg/L

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For MW-11-3MS/MSD, no data were qualified for Calcium and for MW-14-1MS/MSD, no data were qualified for Calcium, Magnesium, and Sodium percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration. Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

IX. ICP Serial Dilution

ICP serial dilution analysis was performed on an associated project sample. The analysis criteria were met.

X. Laboratory Control Samples (LCS)

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

Samples MW-14-3 and DUP-1-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-14-3	DUP-1-2Q15	
Calcium	130000	130000	0
Chromium	1.3	0.69	61
Iron	38	140	115

Analyte	Concentration (ug/L)		RPD
	MW-14-3	DUP-1-2O15	
Manganese	54000	53000	2
Potassium	3100	3100	0
Sodium	46000	46000	0

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

XIII. Sample Result Verification

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

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to negative blank concentration, data were qualified as estimated in eight samples.

Due to laboratory blank contamination, data were qualified as not detected in eleven samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Metals - Data Qualification Summary - SDG 15-09442

Sample	Analyte	Flag	A or P	Reason
EB-1-4/20/15 MW-11-5 MW-11-4 MW-11-2** MW-11-1 MW-14-5 MW-14-4 MW-14-3	Iron	J (all detects) UJ (all non-detects)	A	Laboratory blanks (concentration)

NASA JPL, 2Q2015
Metals - Laboratory Blank Data Qualification Summary - SDG 15-09442

Sample	Analyte	Modified Final Concentration	A or P
DUP-1-2Q15	Iron	140U ug/L	A
SB-1-4/20/15	Chromium Sodium	0.82U ug/L 0.15U mg/L	A
EB-1-4/20/15	Chromium	1.2U ug/L	A
MW-11-5	Chromium	2.4U ug/L	A
MW-11-4	Chromium	0.81U ug/L	A
MW-11-3	Chromium Iron	1.1U ug/L 49U ug/L	A
MW-11-2**	Chromium	1.9U ug/L	A
MW-11-1	Chromium	1.1U ug/L	A
MW-14-5	Chromium Iron	1.6U ug/L 57U ug/L	A
MW-14-4	Chromium	3.2U ug/L	A
MW-14-3	Chromium Iron	1.3U ug/L 38U ug/L	A

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02
File ID: PE2_150424-169
Sampled: 04/20/15 06:50
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:31
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U ~~B~~	EPA-200.7

6/8/15

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03
File ID: PE2_150424-173
Sampled: 04/20/15 07:00
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:41
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U UJ	EPA-200.7

6/8/15 [illegible]

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04
File ID: PE2_150424-174
Sampled: 04/20/15 07:40
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:43
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	540	1	J	EPA-200.7

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05
File ID: PE2_150424-175
Sampled: 04/20/15 08:20
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:46
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	UJ	EPA-200.7

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06
File ID: PE2_150424-163
Sampled: 04/20/15 08:55
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:15
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	49	1	J U	EPA-200.7

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07
File ID: PE2_150424-176
Sampled: 04/20/15 09:30
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	320	1	J	EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID: PE2_150424-177
Sampled: 04/20/15 10:00
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:51
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	170	1	J	EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09
File ID: PE2_150424-178
Sampled: 04/20/15 11:20
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:54
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	57	1	U5	EPA-200.7

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10
File ID: PE2_150424-179
Sampled: 04/20/15 12:00
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U US	EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11
File ID: PE2_150424-180
Sampled: 04/20/15 12:40
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:59
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	38	1	J U5	EPA-200.7

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12
File ID: PE2_150423-164
Sampled: 04/20/15 13:20
Prepared: 04/23/15 11:00
Analyzed: 04/24/15 01:08
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2066
Sequence: 1506690
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	780	1		EPA-200.7

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13
File ID: PE2_150423-158
Sampled: 04/20/15 14:00
Prepared: 04/23/15 11:00
Analyzed: 04/24/15 00:52
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2066
Sequence: 1506690
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	4600	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14
File ID: PE2_150423-168
Sampled: 04/20/15 12:50
Prepared: 04/23/15 11:00
Analyzed: 04/24/15 01:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2066
Sequence: 1506690
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	140	1	U	EPA-200.7

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

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EPA-200.8

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02
File ID: PE_EL2_150422-117
Sampled: 04/20/15 06:50
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 17:52
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.82	1	J M	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Tidewater Inc.
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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03
File ID: PE_EL2_150422-118
Sampled: 04/20/15 07:00
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 17:55
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.2	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04
File ID: PE_EL2_150422-119
Sampled: 04/20/15 07:40
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 17:58
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	6.1	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	2.4	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.37	1	J	EPA-200.8

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05
File ID: PE_EL2_150422-120
Sampled: 04/20/15 08:20
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 18:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.81	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Tidewater Inc.
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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06
File ID: PE_EL2_150422-109
Sampled: 04/20/15 08:55
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 17:17
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.72	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.1	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07
File ID: PE_EL2_150422-121
Sampled: 04/20/15 09:30
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 18:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.0	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.9	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID: PE_EL2_150422-122
Sampled: 04/20/15 10:00
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 18:08
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.1	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09
File ID: PE_EL2_150422-123
Sampled: 04/20/15 11:20
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 18:11
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.0	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.6	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Tidewater Inc.
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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10
File ID: PE_EL2_150422-124
Sampled: 04/20/15 12:00
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 18:14
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	3.2	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11
File ID: PE_EL2_150422-125
Sampled: 04/20/15 12:40
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 18:17
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1915
Sequence: 1506479
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recovcrable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.3	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12
File ID: PE_EL2_150422-167
Sampled: 04/20/15 13:20
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 21:00
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1916
Sequence: 1506481
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.66	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13
File ID: PE_EL2_150422-182
Sampled: 04/20/15 14:00
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 21:53
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1916
Sequence: 1506481
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	24	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15 9

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14
File ID: PE_EL2_150422-183
Sampled: 04/20/15 12:50
Prepared: 04/22/15 09:00
Analyzed: 04/22/15 21:56
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1916
Sequence: 1506481
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.69	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15 X

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02
File ID: PE2_150424-169
Sampled: 04/20/15 06:50
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:31
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.018	1	U	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.15	1	J U	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

6/8/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03
File ID: PE2_150424-173
Sampled: 04/20/15 07:00
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:41
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.018	1	U	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.14	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04
File ID: PE2_150424-174
Sampled: 04/20/15 07:40
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:43
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	22	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	2.4	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	54	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.1	1		EPA-200.7

6/8/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05
File ID: PE2_150424-175
Sampled: 04/20/15 08:20
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:46
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	12	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	12	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	27	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.0	1		EPA-200.7

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06
File ID: PE2_150424-163
Sampled: 04/20/15 08:55
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:15
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	44	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	14	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	28	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07
File ID: PE2_150424-176
Sampled: 04/20/15 09:30
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	51	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	19	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	24	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

6/5/15

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID: PE2_150424-177
Sampled: 04/20/15 10:00
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:51
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	60	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	20	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	28	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09
File ID: PE2_150424-178
Sampled: 04/20/15 11:20
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:54
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	20	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	14	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	35	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.0	1		EPA-200.7

6/3/15 9

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10
File ID: PE2_150424-179
Sampled: 04/20/15 12:00
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	77	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	28	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	35	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.4	1		EPA-200.7

6/8/15

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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11
File ID: PE2_150424-180
Sampled: 04/20/15 12:40
Prepared: 04/22/15 16:55
Analyzed: 04/24/15 19:59
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD1954
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	130	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	54	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	46	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12
File ID: PE2_150423-164
Sampled: 04/20/15 13:20
Prepared: 04/23/15 11:00
Analyzed: 04/24/15 01:08
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2066
Sequence: 1506690
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	150	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	53	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	44	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

6/8/15 q

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13
File ID: PE2_150423-158
Sampled: 04/20/15 14:00
Prepared: 04/23/15 11:00
Analyzed: 04/24/15 00:52
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2066
Sequence: 1506690
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	140	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	46	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	63	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:18:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14
File ID: PE2_150423-168
Sampled: 04/20/15 12:50
Prepared: 04/23/15 11:00
Analyzed: 04/24/15 01:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2066
Sequence: 1506690
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	130	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	53	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	46	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

6/8/15

LDC #: 34336A4a

SDG #: 15-09442

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 5-27-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: 9

METHOD: Metals (EPA Method 200.7/200.8)

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.	Sample receipt/Technical holding times	A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	SW	SB = 1 EB = 2
VII.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD #14/15: Ca-4x #20/21: Ca, Mg, Na-4x
VIII.	Duplicate sample analysis	A	DUP
IX.	ICP Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	SW	D = 10 + 13
XII.	Internal Standard (ICP-MS)	A	not reviewed for level III
XIII.	Sample Result Verification	A	Not reviewed for Level III validation.
XIV.	Overall Assessment of Data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

		Client ID	Lab ID	Matrix	Date
1	1	SB-1-4/20/15	1509442-02	Water	04/20/15
2	1	EB-1-4/20/15	1509442-03	Water	04/20/15
3	1	MW-11-5	1509442-04	Water	04/20/15
4	1	MW-11-4	1509442-05	Water	04/20/15
5	1	MW-11-3	1509442-06	Water	04/20/15
6	1	MW-11-2**	1509442-07**	Water	04/20/15
7	1	MW-11-1	1509442-08	Water	04/20/15
8	1	MW-14-5	1509442-09	Water	04/20/15
9	1	MW-14-4	1509442-10	Water	04/20/15
10	1	MW-14-3	1509442-11	Water	04/20/15
11	2	MW-14-2	1509442-12	Water	04/20/15
12	2	MW-14-1	1509442-13	Water	04/20/15
13	2	DUP-1-2Q15	1509442-14	Water	04/20/15
14	1	MW-11-3MS	1509442-06MS	Water	04/20/15
15	1	MW-11-3MSD	1509442-06MSD	Water	04/20/15

LDC #: 34336A4a

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 5-27-15

SDG #: 15-09442

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: ✓

METHOD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16 1	MW-11-3DUP	1509442-06DUP	Water	04/20/15
17 2	MW-14-2MS	1509442-12MS	Water	04/20/15
18 2	MW-14-2MSD	1509442-12MSD	Water	04/20/15
19 2	MW-14-2DUP	1509442-12DUP	Water	04/20/15
20 2	MW-14-1MS	1509442-13MS	Water	04/20/15
21 2	MW-14-1MSD	1509442-13MSD	Water	04/20/15
22 2	MW-14-1DUP	1509442-13DUP	Water	04/20/15
23				
24				
25				
26 1	PBW1			
27 2	PBW2			

Notes:

LDC #: 34336A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

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

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were < 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 34336A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XII. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
XIII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 34336A4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: MG
2nd reviewer: 9

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1→13	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
QC 14→16	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
17→19	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
20→22	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
Analysis Method		
ICP	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
ICP-MS	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____

Comments: Mercury by CVAA if performed

LDC #: 34336A4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA

Reviewer: MG
2nd Reviewer: a

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 11-13

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	13									
Fe			33.980	169.9	140									

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1-10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	1	2	3	4	5	6	7	8	9	10
Cr		1.1240		5.620	0.82	1.2	2.4	0.81	1.1	1.9	1.1	1.6	3.2	1.3
Fe			28.739	143.7					49			57		38

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1-4,6-10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	1	2	3	4	6	7	8	9	10	
Cr			0.8230	4.115	see PB	see PB	see PB	see PB	see PB	see PB	see PB	see PB	see PB	

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 5

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	5									
Cr			0.5120	2.560	see PB									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 11,12 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na			0.034168	0.1708										

LDC #: 34336A4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA
Associated Samples: 1,5

Reviewer: MG
2nd Reviewer:

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	1									
Na			0.032214	0.1611	0.15									

Sample Concentration units, unless otherwise noted: mg/L
Associated Samples: 2-4,6-10 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na			0.018902	0.0945										

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

LDC #: 34336A4a
SDG #: —

VALIDATION FINDINGS WORKSHEET
Negative Blanks

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

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)
The absolute value of the negative blank conentrations listed below exceeded the MDL

— (µg/L) —

#	Blank ID	Analyte	Negative Blank Concentration	MRL MDL	Associated Samples	Qualifications	
1	CCB5	Fe	-66.285	50.0	2,4,9	UJ	(all ND)
	↓	↓	↓	↓	3,6→8,10	J	(all dets)

Comments:

LDC #: 34336A4a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: ~~X~~

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

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

Sample: 1 Field Blank / Trip Blank / Rinsate / Other SB (circle one)

Analyte	Concentration Units ( )
Cr	0.82 (µg/L)
Na	0.15 (mg/L)

Sample: 2 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Cr	1.2 (µg/L)
Na	0.14 (mg/L)

LDC#: 34336A4a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: ✓

METHOD: Metals (EPA Method 200.7/200.8)

Analyte	Concentration (ug/L)		RPD	
	10	13		
Calcium	130000	130000	0	
Chromium	1.3	0.69	61	
Iron	38	140	115	
Magnesium	54000	53000	2	
Potassium	3100	3100	0	
Sodium	46000	46000	0	

V:\FIELD DUPLICATES\FD_inorganic\34336A4a.wpd

LDC #: 34336A4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: MG
2nd Reviewer: [illegible]

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

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found / True x 100 Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
1941 ICV	ICP (Initial calibration)	Fe	50390	50000	101	101	Y
1132 ICV	ICP/MS (Initial calibration)	Cr	51.357	50.00	103	103	↓
	CVAA (Initial calibration)						
1934 CCV4	ICP (Continuing calibration)	K	48710	50000	97.4	97.4	
1744 CCVB	ICP/MS (Continuing calibration)	Pb	104.609	100.0	105	105	
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

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

LDC #: 34336A4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

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

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

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
1757 ICSAB	ICP interference check	Ca	503.3 (mg/L)	500.0 (mg/L)	101	101	Y
1711 LCS	Laboratory control sample	As	107.6 (µg/L)	100.0 (µg/L)	108	108	↓
1726 14	Matrix spike	Pb	(SSR-SR) 106.3 (µg/L)	100.0 (µg/L)	106	106	↓
1915 16 1918	Duplicate	Fe	48.8 (µg/L)	60.6 (µg/L)	21.6	21.7	↓
1915 5 1921	ICP serial dilution	Na	27.87 (mg/L)	27.99 (mg/L)	0.4	0.4	↓

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

TOTCLC.4SW

LDC #: 34336A4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MG
2nd reviewer: ✓

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

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for #6, Cr were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

$$\frac{(1.877\ \mu g/L)(0.050\ L)}{0.050\ L} = 1.877\ \mu g/L$$

#	Sample ID	Analyte	Reported Concentration (µg/L)	Calculated Concentration (µg/L)	Acceptable (Y/N)
1	6	Cr	1.9	1.9	Y
		Mg	19	19	↓

Note:

RECALC.4SW

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 2, 2015

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09442

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SB-1-4/20/15	1509442-02	Water	04/20/15
EB-1-4/20/15	1509442-03	Water	04/20/15
MW-11-5	1509442-04	Water	04/20/15
MW-11-4	1509442-05	Water	04/20/15
MW-11-3	1509442-06	Water	04/20/15
MW-11-2**	1509442-07**	Water	04/20/15
MW-11-1	1509442-08	Water	04/20/15
MW-14-5	1509442-09	Water	04/20/15
MW-14-4	1509442-10	Water	04/20/15
MW-14-3	1509442-11	Water	04/20/15
MW-14-2	1509442-12	Water	04/20/15
MW-14-1	1509442-13	Water	04/20/15
DUP-1-2Q15	1509442-14	Water	04/20/15
MW-11-5DUP	1509442-04DUP	Water	04/20/15
MW-11-3MS	1509442-06MS	Water	04/20/15
MW-11-3MSD	1509442-06MSD	Water	04/20/15
MW-11-3DUP	1509442-06DUP	Water	04/20/15
MW-11-1MS	1509442-08MS	Water	04/20/15
MW-11-1MSD	1509442-08MSD	Water	04/20/15
MW-11-1DUP	1509442-08DUP	Water	04/20/15
MW-14-5DUP	1509442-09DUP	Water	04/20/15
MW-14-2MS	1509442-12MS	Water	04/20/15
MW-14-2MSD	1509442-12MSD	Water	04/20/15
MW-14-2DUP	1509442-12DUP	Water	04/20/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Hexavalent Chromium by EPA SW 846 Method 7196
Nitrite as Nitrogen by EPA Method 353.2
Orthophosphate as Phosphorus by EPA Method 365.1
Perchlorate by EPA Method 314.0
pH by EPA Method 150.1
Total Dissolved Solids by EPA Method 160.1

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
SB-1-4/20/15	pH	55.82 hours	48 hours	J (all detects)	P
EB-1-4/20/15	pH	55.75 hours	48 hours	J (all detects)	P
MW-11-5	pH	56.67 hours	48 hours	J (all detects)	P
MW-11-4	pH	56.25 hours	48 hours	J (all detects)	P
MW-11-3	pH	55.80 hours	48 hours	J (all detects)	P
MW-11-2**	pH	55.35 hours	48 hours	J (all detects)	P
MW-11-1	pH	54.98 hours	48 hours	J (all detects)	P
MW-14-5	pH	54.78 hours	48 hours	J (all detects)	P
MW-14-4	pH	54.37 hours	48 hours	J (all detects)	P
MW-14-3	pH	53.85 hours	48 hours	J (all detects)	P
MW-14-2	pH	53.30 hours	48 hours	J (all detects)	P
MW-14-1	pH	52.75 hours	48 hours	J (all detects)	P
DUP-1-2Q15	pH	54.03 hours	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

The absolute value of the contaminant concentrations found in the initial, continuing and preparation blanks were less than the method reporting limit (MRL) with the following exceptions:

Method Blank ID	Analyte	Concentration	MRL	Associated Samples	Flag	A or P
CCB1	Hexavalent chromium	-0.090334 mg/L	0.0020 mg/L	SB-1-4/20/15 EB-1-4/20/15 MW-11-5 MW-11-4	UJ (all non-detects)	A

V. Field Blanks

Sample EB-1-4/20/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-1-4/20/15	pH Chloride Nitrate as N Sulfate	5.67 Units 0.26 mg/L 0.031 mg/L 0.29 mg/L

Sample SB-1-4/20/15 was identified as a source blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
SB-1-4/20/15	pH Chloride Nitrate as N Sulfate	5.85 Units 0.14 mg/L 0.030 mg/L 0.28 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples MW-14-3 and DUP-1-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-14-3	DUP-1-2Q15	
Total alkalinity	230 mg/L	230 mg/L	0
Bicarbonate	290 mg/L	290 mg/L	0
Chloride	110 mg/L	110 mg/L	0
Nitrate as N	15 mg/L	15 mg/L	0
Perchlorate	5.1 ug/L	6.0 ug/L	16
pH	7.88 Units	7.96 Units	1
Sulfate	170 mg/L	170 mg/L	0
Total dissolved solids	730 mg/L	740 mg/L	1

X. Sample Result Verification

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

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to technical holding time and laboratory blanks concentration, data were qualified as estimated in thirteen samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Wet Chemistry - Data Qualification Summary - SDG 15-09442

Sample	Analyte	Flag	A or P	Reason
SB-1-4/20/15 EB-1-4/20/15 MW-11-5 MW-11-4 MW-11-3 MW-11-2** MW-11-1 MW-14-5 MW-14-4 MW-14-3 MW-14-2 MW-14-1 DUP-1-2Q15	pH	J (all detects)	P	Technical holding time
SB-1-4/20/15 EB-1-4/20/15 MW-11-5 MW-11-4	Hexavalent chromium	UJ (all non-detects)	A	Laboratory blanks (concentration)

NASA JPL, 2Q2015
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 15-09442

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02
File ID: Tiamo042215-046
Sampled: 04/20/15 06:50
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 14:39
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1964
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.0	1	U	SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.1	1	U	SM-2320B

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03
File ID: Tiamo042215-047
Sampled: 04/20/15 07:00
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 14:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1964
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.0	1	U	SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.1	1	U	SM-2320B

6/8/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04
File ID: Tiamo042215-059
Sampled: 04/20/15 07:40
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	160	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	130	1		SM-2320B

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05
File ID: Tiamo042215-061
Sampled: 04/20/15 08:20
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	120	1		SM-2320B
3812-32-6	Carbonate	6.4	1		SM-2320B
----	Total Alkalinity as CaCO3	110	1		SM-2320B

6/8/15 Q

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06
File ID: Tiamo042215-062
Sampled: 04/20/15 08:55
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	210	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	170	1		SM-2320B

6/8/15 ?

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07
File ID: Tiamo042215-063
Sampled: 04/20/15 09:30
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	230	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	190	1		SM-2320B

6/8/15 K

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID: Tiamo042215-064
Sampled: 04/20/15 10:00
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	250	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	210	1		SM-2320B

6/8/15

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09
File ID: Tiamo042215-074
Sampled: 04/20/15 11:20
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	150	1		SM-2320B
3812-32-6	Carbonate	4.0	1		SM-2320B
---	Total Alkalinity as CaCO3	130	1		SM-2320B

6/8/15

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10
File ID: Tiamo042215-076
Sampled: 04/20/15 12:00
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	210	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	170	1		SM-2320B

6/8/15

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11
File ID: Tiamo042215-077
Sampled: 04/20/15 12:40
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	290	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	230	2	D	SM-2320B

6/8/15

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12
File ID: Tiamo042215-078
Sampled: 04/20/15 13:20
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:38
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	290	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	240	2	D	SM-2320B

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13
File ID: Tiamo042215-079
Sampled: 04/20/15 14:00
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	250	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	210	2	D	SM-2320B

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14
File ID: Tiamo042215-080
Sampled: 04/20/15 12:50
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	290	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	230	2	D	SM-2320B

6/8/15

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02
File ID: 150420 2258 CR6-009
Sampled: 04/20/15 06:50
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 22:58
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U UJ	EPA-7196

6/8/15 J

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03
File ID: 150420 2258 CR6-010
Sampled: 04/20/15 07:00
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 22:58
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U U5	EPA-7196

6/8/15

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04
File ID: 150420 2258 CR6-011
Sampled: 04/20/15 07:40
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 22:58
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U UJ	EPA-7196

6/8/15

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05
File ID: 150420 2258 CR6-012
Sampled: 04/20/15 08:20
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 22:58
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U UJ	EPA-7196

6/8/15 8

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06
File ID: 150420 2258 CR6-036
Sampled: 04/20/15 08:55
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 23:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/8/15 8

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07
File ID: 150420 2258 CR6-015
Sampled: 04/20/15 09:30
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 23:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/8/15 8

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID: 150420 2258 CR6-016
Sampled: 04/20/15 10:00
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 23:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/8/15 J

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09
File ID: 150420 2258 CR6-017
Sampled: 04/20/15 11:20
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 23:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/8/15 8

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10
File ID: 150420 2258 CR6-018
Sampled: 04/20/15 12:00
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 23:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0013	1	J	EPA-7196

6/8/15

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Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11
File ID: 150420 2258 CR6-019
Sampled: 04/20/15 12:40
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 23:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1828
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12
File ID: 150420 2258 CR6-022
Sampled: 04/20/15 13:20
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 23:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1829
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13
File ID: 150420 2258 CR6-028
Sampled: 04/20/15 14:00
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 23:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1829
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14
File ID: 150420 2258 CR6-029
Sampled: 04/20/15 12:50
Prepared: 04/20/15 22:58
Analyzed: 04/20/15 23:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1829
Sequence: 1506455
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02
File ID: 150420 2356 NO2-064
Sampled: 04/20/15 06:50
Prepared: 04/20/15 23:56
Analyzed: 04/20/15 23:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15 D

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03
File ID: 150420 2356 NO2-065
Sampled: 04/20/15 07:00
Prepared: 04/20/15 23:56
Analyzed: 04/20/15 23:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04
File ID: 150420 2356 NO2-066
Sampled: 04/20/15 07:40
Prepared: 04/20/15 23:56
Analyzed: 04/20/15 23:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15

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3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05
File ID: 150420 2356 NO2-067
Sampled: 04/20/15 08:20
Prepared: 04/20/15 23:56
Analyzed: 04/20/15 23:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06
File ID: 150420 2356 NO2-060
Sampled: 04/20/15 08:55
Prepared: 04/20/15 23:56
Analyzed: 04/20/15 23:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15 d

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07
File ID: 150420 2356 NO2-070
Sampled: 04/20/15 09:30
Prepared: 04/20/15 23:56
Analyzed: 04/21/15 00:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15 8

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID: 150420 2356 NO2-071
Sampled: 04/20/15 10:00
Prepared: 04/20/15 23:56
Analyzed: 04/21/15 00:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15 d

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09
File ID: 150420 2356 NO2-072
Sampled: 04/20/15 11:20
Prepared: 04/20/15 23:56
Analyzed: 04/21/15 00:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10
File ID: 150420 2356 NO2-073
Sampled: 04/20/15 12:00
Prepared: 04/20/15 23:56
Analyzed: 04/21/15 00:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11
File ID: 150420 2356 NO2-074
Sampled: 04/20/15 12:40
Prepared: 04/20/15 23:56
Analyzed: 04/21/15 00:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1797
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12
File ID: 150420 2356 NO2-101
Sampled: 04/20/15 13:20
Prepared: 04/20/15 23:56
Analyzed: 04/21/15 07:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1798
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.66	5	D	EPA-353.2

6/8/15

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13
File ID: 150420 2356 NO2-083
Sampled: 04/20/15 14:00
Prepared: 04/20/15 23:56
Analyzed: 04/21/15 00:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1798
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14
File ID: 150420 2356 NO2-084
Sampled: 04/20/15 12:50
Prepared: 04/20/15 23:56
Analyzed: 04/21/15 00:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1798
Sequence: 1506461
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/8/15 U

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02RE1
File ID: F042215A.seq-52.0000.txt
Sampled: 04/20/15 06:50
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 02:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/5/15 Y

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03RE1
File ID: F042215A.seq-53.0000.txt
Sampled: 04/20/15 07:00
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 02:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04RE1
File ID: F042215A.seq-54.0000.txt
Sampled: 04/20/15 07:40
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 02:58
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05RE1
File ID: F042215A.seq-55.0000.txt
Sampled: 04/20/15 08:20
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 03:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/8/15

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06RE1
File ID: F042215A.seq-56.0000.txt
Sampled: 04/20/15 08:55
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 03:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/8/15 8

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07RE1
File ID: F042215A.seq-57.0000.txt
Sampled: 04/20/15 09:30
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 03:39
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/8/15 ?

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08RE1
File ID: F042215A.seq-58.0000.txt
Sampled: 04/20/15 10:00
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 03:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09RE1
File ID: F042215A.seq-59.0000.txt
Sampled: 04/20/15 11:20
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 04:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10RE1
File ID: F042215A.seq-60.0000.txt
Sampled: 04/20/15 12:00
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 04:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.4	1		EPA-314.0

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11RE1
File ID: F042215A.seq-61.0000.txt
Sampled: 04/20/15 12:40
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 04:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2138
Sequence: 1506591
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	5.1	1		EPA-314.0

6/8/15

Tidewater Inc.
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Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12RE1
File ID: F042215A.seq-64.0000.txt
Sampled: 04/20/15 13:20
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 08:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2139
Sequence: 1506605
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.0	1		EPA-314.0

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13RE1
File ID: F042215A.seq-65.0000.txt
Sampled: 04/20/15 14:00
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 08:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2139
Sequence: 1506605
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.5	1	J	EPA-314.0

6/8/15

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14RE1
File ID: F042215A.seq-66.0000.txt
Sampled: 04/20/15 12:50
Prepared: 04/22/15 12:30
Analyzed: 04/23/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2139
Sequence: 1506605
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	6.0	1		EPA-314.0

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Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02
File ID: E042115.seq-10
Sampled: 04/20/15 06:50
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 02:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.14	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.030	1	J	EPA-300.0
14808-79-8	Sulfate	0.28	1	J	EPA-300.0

6/8/15

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3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03
File ID: E042115.seq-11
Sampled: 04/20/15 07:00
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 03:08
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.26	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.031	1	J	EPA-300.0
14808-79-8	Sulfate	0.29	1	J	EPA-300.0

6/8/15 R

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04
File ID: E042115.seq-12
Sampled: 04/20/15 07:40
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 03:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	11	1		EPA-300.0
14797-55-8	Nitrate as N	0.055	1	J	EPA-300.0
14808-79-8	Sulfate	18	1		EPA-300.0

6/8/15

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05
File ID: E042115.seq-13
Sampled: 04/20/15 08:20
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 03:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	11	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	1.5	1		EPA-300.0

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06
File ID: E042115.seq-06
Sampled: 04/20/15 08:55
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 01:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: I507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	11	1		EPA-300.0
14797-55-8	Nitrate as N	0.10	1		EPA-300.0
14808-79-8	Sulfate	24	1		EPA-300.0

6/8/15 R

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07
File ID: E042115.seq-16
Sampled: 04/20/15 09:30
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 04:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	16	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	35	1		EPA-300.0

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID: E042115.seq-17
Sampled: 04/20/15 10:00
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 04:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	18	1		EPA-300.0
14797-55-8	Nitrate as N	0.22	1		EPA-300.0
14808-79-8	Sulfate	32	1		EPA-300.0

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09
File ID: E042115.seq-18
Sampled: 04/20/15 11:20
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 05:09
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	12	1		EPA-300.0
14797-55-8	Nitrate as N	0.15	1		EPA-300.0
14808-79-8	Sulfate	19	1		EPA-300.0

6/8/15

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Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10
File ID: E042115.seq-19
Sampled: 04/20/15 12:00
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 05:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	59	1		EPA-300.0
14797-55-8	Nitrate as N	12	1		EPA-300.0
14808-79-8	Sulfate	62	1		EPA-300.0

6/8/15

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11RE1
File ID: E042115.seq-31
Sampled: 04/20/15 12:40
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 08:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1761
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	110	1		EPA-300.0
14797-55-8	Nitrate as N	15	1		EPA-300.0
14808-79-8	Sulfate	170	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12RE1
File ID: E042115.seq-34
Sampled: 04/20/15 13:20
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 11:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1762
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	120	1		EPA-300.0
14797-55-8	Nitrate as N	13	1		EPA-300.0
14808-79-8	Sulfate	190	1		EPA-300.0

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13RE1
File ID: E042115.seq-35
Sampled: 04/20/15 14:00
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 11:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1762
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	140	1		EPA-300.0
14797-55-8	Nitrate as N	13	1		EPA-300.0
14808-79-8	Sulfate	200	1		EPA-300.0

5/8/15

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Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14RE1
File ID: E042115.seq-36
Sampled: 04/20/15 12:50
Prepared: 04/21/15 00:10
Analyzed: 04/21/15 12:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1762
Sequence: 1507061
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	110	1		EPA-300.0
14797-55-8	Nitrate as N	15	1		EPA-300.0
14808-79-8	Sulfate	170	1		EPA-300.0

6/8/15 Q

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02
File ID:
Sampled: 04/20/15 06:50
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	6.7	0.667	UD	EPA-160.1

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03
File ID:
Sampled: 04/20/15 07:00
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	6.7	0.667	UD	EPA-160.1

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04
File ID:
Sampled: 04/20/15 07:40
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	220	2	D	EPA-160.1

6/8/15

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05
File ID:
Sampled: 04/20/15 08:20
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	160	1		EPA-160.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06
File ID:
Sampled: 04/20/15 08:55
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	260	2	D	EPA-160.1

6/8/15

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Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07
File ID:
Sampled: 04/20/15 09:30
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	310	2	D	EPA-160.1

5/8/15 Y

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID:
Sampled: 04/20/15 10:00
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	320	2	D	EPA-160.1

6/8/15 Y

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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09
File ID:
Sampled: 04/20/15 11:20
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	220	2	D	EPA-160.1

6/8/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10
File ID:
Sampled: 04/20/15 12:00
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	450	2	D	EPA-160.1

6/8/15 a

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11
File ID:
Sampled: 04/20/15 12:40
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1970
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	730	5	D	EPA-160.1

6/8/15 K

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12
File ID:
Sampled: 04/20/15 13:20
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1971
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	830	5	D	EPA-160.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13
File ID:
Sampled: 04/20/15 14:00
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1971
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	830	5	D	EPA-160.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14
File ID:
Sampled: 04/20/15 12:50
Prepared: 04/23/15 10:30
Analyzed: 04/23/15 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD1971
Sequence: 1506685
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	740	5	D	EPA-160.1

5/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:12:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-365.1

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID: 150421 0753 O-PHOS_R1-999
Sampled: 04/20/15 10:00
Prepared: 04/21/15 07:53
Analyzed: 04/21/15 11:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1800
Sequence: 1506587
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.015	1	J	EPA-365.1

5/8/15

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Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

SB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-02
File ID: Tiamo042215-046
Sampled: 04/20/15 06:50
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 14:39
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1964
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.85	1	J	EPA-150.1

4/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

EB-1-4/20/15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-03
File ID: Tiamo042215-047
Sampled: 04/20/15 07:00
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 14:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1964
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.67	1	J	EPA-150.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-11-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-04
File ID: Tiamo042215-059
Sampled: 04/20/15 07:40
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.02	1	J	EPA-150.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-11-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-05
File ID: Tiamo042215-061
Sampled: 04/20/15 08:20
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.59	1	J	EPA-150.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-11-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-06
File ID: Tiamo042215-062
Sampled: 04/20/15 08:55
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.00	1	J	EPA-150.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-11-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-07
File ID: Tiamo042215-063
Sampled: 04/20/15 09:30
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.06	1	J	EPA-150.1

6/8/15

Tidewater Inc.
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Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-11-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-08
File ID: Tiamo042215-064
Sampled: 04/20/15 10:00
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 16:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1965
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.89	1	J	EPA-150.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-14-5

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-09
File ID: Tiamo042215-074
Sampled: 04/20/15 11:20
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.40	1	J	EPA-150.1

6/8/15 J

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-14-4

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-10
File ID: Tiamo042215-076
Sampled: 04/20/15 12:00
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.02	1	J	EPA-150.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-14-3

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-11
File ID: Tiamo042215-077
Sampled: 04/20/15 12:40
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.88	1	J	EPA-150.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-14-2

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-12
File ID: Tiamo042215-078
Sampled: 04/20/15 13:20
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:38
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
----	pH	7.73	1	J	EPA-150.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-14-1

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-13
File ID: Tiamo042215-079
Sampled: 04/20/15 14:00
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.35	1	J	EPA-150.1

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:57:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

DUP-1-2Q15

Laboratory: BC Laboratories
SDG: 15-09442
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509442-14
File ID: Tiamo042215-080
Sampled: 04/20/15 12:50
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 18:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD1966
Sequence: 1506542
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.96	1	J	EPA-150.1

6/8/15 8

LDC #: 34336A6

SDG #: 15-09442

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 5-28-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Orthophosphate-P (EPA Method 365.1), Perchlorate (EPA Method 314.0) pH (EPA Method 150.1), TDS (EPA Method 160.1)

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.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	SW	SB = 1, EB = 2
VI.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VII.	Duplicate sample analysis	A	DUP
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	D = 10 + 13
X.	Sample result verification	A	Not reviewed for Level III validation.
XI.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SB-1-4/20/15	1509442-02	Water	04/20/15
2	EB-1-4/20/15	1509442-03	Water	04/20/15
3	MW-11-5	1509442-04	Water	04/20/15
4	MW-11-4	1509442-05	Water	04/20/15
5	MW-11-3	1509442-06	Water	04/20/15
6	MW-11-2**	1509442-07**	Water	04/20/15
7	MW-11-1	1509442-08	Water	04/20/15
8	MW-14-5	1509442-09	Water	04/20/15
9	MW-14-4	1509442-10	Water	04/20/15
10	MW-14-3	1509442-11	Water	04/20/15
11	MW-14-2	1509442-12	Water	04/20/15
12	MW-14-1	1509442-13	Water	04/20/15
13	DUP-1-2Q15	1509442-14	Water	04/20/15
14	MW-11-5DUP	1509442-04DUP	Water	04/20/15
15	MW-11-3MS	1509442-06MS	Water	04/20/15
16	MW-11-3MSD	1509442-06MSD	Water	04/20/15

LDC #: 34336A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 5-28-15

SDG #: 15-09442 Level III/IV Page: 2 of 2

Laboratory: BC Laboratories, Inc. Reviewer: MG

2nd Reviewer: ✓

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Orthophosphate-P (EPA Method 365.1), Perchlorate (EPA Method 314.0) pH (EPA Method 150.1), TDS (EPA Method 160.1)

	Client ID	Lab ID	Matrix	Date
17	MW-11-3DUP	1509442-06DUP	Water	04/20/15
18	MW-11-1MS	1509442-08MS	Water	04/20/15
19	MW-11-1MSD	1509442-08MSD	Water	04/20/15
20	MW-11-1DUP	1509442-08DUP	Water	04/20/15
21	MW-14-5DUP	1509442-09DUP	Water	04/20/15
22	MW-14-2MS	1509442-12MS	Water	04/20/15
23	MW-14-2MSD	1509442-12MSD	Water	04/20/15
24	MW-14-2DUP	1509442-12DUP	Water	04/20/15
25				
26				
27	PBW1			
28	PBW2			
29	PBW3			

Notes:

LDC #: 34336A6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

Method: Inorganics (EPA Method See cover)

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

LDC #: 34336A6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
X. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 34336A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer: ✓

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→6, 8→13	W	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
7	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
QC 14, 21	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
15, 16, 22, 23	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
17, 24	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
18→20	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 34336A6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

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

All circled dates have exceeded the technical holding time.
(Y)N N/A Were all samples preserved as applicable to each method ?
(Y)N N/A Were all cooler temperatures within validation criteria?

Method:		150.1					
Parameters:		pH					
Technical holding time:		48 hr					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
1	06:50 4-20-15	14:39 4-22-15	(55.82 hr)				J/UJ/P (all dets)
2	07:00 4-20-15	14:45 4-22-15	(55.75)				
3	07:40 4-20-15	16:30 4-22-15	(56.67)				
4	08:20 4-20-15	16:35 4-22-15	(56.25)				
5	08:55 4-20-15	16:43 4-22-15	(55.80)				
6	09:30 4-20-15	16:51 4-22-15	(55.35)				
7	10:00 4-20-15	16:59 4-22-15	(54.98)				
8	11:20 4-20-15	18:07 4-22-15	(54.78)				
9	12:00 4-20-15	1822 4-22-15	(54.37)				
10	12:40 4-20-15	18:31 4-22-15	(53.85)				
11	13:20 4-20-15	18:38 4-22-15	(53.30)				
12	14:00 4-20-15	18:45 4-22-15	(52.75)				
13	12:50 4-20-15	18:52 4-22-15	(54.03)				
14	07:40 4-20-15	16:27 4-22-15	(56.78)				
21	11:20 4-20-15	18:14 4-22-15	(54.90)				

LDC #: 34336A6
SDG #: —

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: MG
2nd Reviewer: [illegible]

Negative Blanks

METHOD: Inorganics, Method see cover (mg/L)

#	Date	Blank ID	Analyte	CCB Finding	MRL	Associated Samples	Qualifications
1	4-20-15	CCB1	Cr VI	-0.090334	0.0020	1→4	UJ (all ND)

Comments:

BLANKS.4C4

LDC #: 34336A6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: ✓

METHOD: Inorganics, EPA Method see cover

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

Sample: 1 Field Blank / Trip Blank / Rinsate (circle one) SB

Analyte	Concentration Units ( )
pH	5.85 (pH units)
Cl	0.14 (mg/L)
NO3-N	0.030 (↓)
SO4	0.28 (↓)

Sample: 2 Field Blank / Trip Blank / Rinsate (circle one) EB

Analyte	Concentration Units ( )
pH	5.67 (pH units)
Cl	0.26 (mg/L)
NO3-N	0.031 (↓)
SO4	0.29 (↓)

LDC# 34336A6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: [illegible]

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD	
	10	13		
Total Alkalinity	230	230	0	
Bicarbonate	290	290	0	
Chloride	110	110	0	
Nitrate as N	15	15	0	
Perchlorate (ug/L)	5.1	6.0	16	
pH (pH units)	7.88	7.96	1	
Sulfate	170	170	0	
TDS	730	740	1	

V:\FIELD DUPLICATES\FD_inorganic\34336A6.WPD

LDC #: 34336A6

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

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

METHOD: Inorganics, Method see cover

The correlation coefficient (r) for the calibration of NO_2-N was recalculated. Calibration date: 4-3-15

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

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

Type of Analysis	Analyte	Standard ID	Conc. Found (units)	Abs. True (units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration	NO_2-N	Blank	0.00 (mg/L)	0.007	$r^2=0.999879$	$r^2=0.999872$	Y
		Standard 1	0.02 (↓)	0.018			
		Standard 2	0.05 (↓)	0.034			
		Standard 3	0.10 (↓)	0.061			
		Standard 4	0.50 (↓)	0.271			
		Standard 5	1.00 (↓)	0.547			
		Standard 6	—	—			
		Standard 7	—	—			
Calibration verification	Cr VI	2305 CCV2	0.0518 (mg/L)	0.050 (mg/L)	104	104	↓
Calibration verification	ClO_4	0202 CCV4	9.600 (µg/L)	10.00 (µg/L)	96.0	96.0	
Calibration verification	NO_3-N	0400 CCV1	5.088 (mg/L)	5.00 (mg/L)	102	102	

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

LDC #: 34336A6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

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

METHOD: Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
0215 LCS	Laboratory control sample	ClO_4	10.76 (µg/L)	10.00 (µg/L)	108	108	Y
0215 15	Matrix spike sample	Cl	(SSR-SR) 55.762 (mg/L)	50.505 (mg/L)	110	110	↓
14	Duplicate sample	pH	8.02 (pH unit)	8.04 (pH unit)	0.249	0.249	↓

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

TOTCLC.6

LDC #: 34336A6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: Inorganics, Method See cover

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for #6, TDS reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

$$TDS = \frac{(1.9360\,g - 1.9207\,g)(1000\,mg/g)}{0.050\,L} = 306\ mg/L$$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	6	pH	8.06 (pH units)	8.06 (pH units)	Y
		TDS	310	310	↓
		SO4	35	35	↓
		Total Alk	190	190	↓

Note: The level IV sample is N.D. for methods 314.0, 353.2 and 7196.

RECALC.6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 4, 2015

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09577

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-2-4/21/15	1509577-01	Water	04/21/15
EB-2-4/21/15	1509577-02	Water	04/21/15
MW-4-5	1509577-03	Water	04/21/15
MW-4-4	1509577-04	Water	04/21/15
DUP-2-2Q15	1509577-05	Water	04/21/15
MW-4-3	1509577-06	Water	04/21/15
MW-4-2	1509577-07	Water	04/21/15
MW-4-1	1509577-08	Water	04/21/15
MW-24-5	1509577-09	Water	04/21/15
MW-24-4	1509577-10	Water	04/21/15
MW-24-3	1509577-11	Water	04/21/15
MW-24-2	1509577-12	Water	04/21/15
MW-24-1	1509577-13	Water	04/21/15
MW-24-3MS	1509577-11MS	Water	04/21/15
MW-24-3MSD	1509577-11MSD	Water	04/21/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

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 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/22/15 (1506390)	Bromomethane	38.3	All samples in SDG 15-09577	UJ (all non-detects)	P
04/22/15 (1506390)	Methyl iodide	42.7	All samples in SDG 15-09577	UJ (all non-detects)	P

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-2-4/21/15 was identified as a trip blank. No contaminants were found.

Sample EB-2-4/21/15 was identified as an equipment blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples MW-4-4 and DUP-2-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-4-4	DUP-2-2Q15	
Ethylbenzene	0.59	0.51	15
Styrene	0.57	0.55	4
Toluene	0.14	0.16	13
Trichloroethene	0.30	0.28	7

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D, data were qualified as estimated in thirteen samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (UJ) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Volatiles - Data Qualification Summary - SDG 15-09577

Sample	Compound	Flag	A or P	Reason
TB-2-4/21/15	Bromomethane	UJ (all non-detects)	P	Continuing calibration (%D)
EB-2-4/21/15	Methyl iodide	UJ (all non-detects)		
MW-4-5				
MW-4-4				
DUP-2-2Q15				
MW-4-3				
MW-4-2				
MW-4-1				
MW-24-5				
MW-24-4				
MW-24-3				
MW-24-2				
MW-24-1				

NASA JPL, 2Q2015
Volatiles - Laboratory Blank Data Qualification Summary - SDG 15-09577

No Sample Data Qualified in this SDG

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-2-4/21/15

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-01	File ID:	22APR14.D
Sampled:	04/21/15 06:20	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 11:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-2-4/21/15

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-01	File ID:	22APR14.D
Sampled:	04/21/15 06:20	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 11:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/8/15 9

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-2-4/21/15

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-01	File ID:	22APR14.D
Sampled:	04/21/15 06:20	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 11:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6300	96.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9500	99.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4100	94.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	203801	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	81593	9.73	84046	9.72	
1,4-Difluorobenzene (IS)	311300	7.52	311257	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-2-4/21/15

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-02	File ID:	22APR15.D
Sampled:	04/21/15 06:40	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 12:01
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-2-4/21/15

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-02	File ID:	22APR15.D
Sampled:	04/21/15 06:40	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 12:01
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-2-4/21/15

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-02	File ID:	22APR15.D
Sampled:	04/21/15 06:40	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 12:01
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7400	97.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.000	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6100	96.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	210658	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	81973	9.73	84046	9.72	
1,4-Difluorobenzene (IS)	314379	7.52	311257	7.52	

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-5

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-03	File ID:	22APR16.D
Sampled:	04/21/15 07:20	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 12:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-5

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-03	File ID:	22APR16.D
Sampled:	04/21/15 07:20	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 12:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.47	J
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.49	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.15	J
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-5

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-03	File ID:	22APR16.D
Sampled:	04/21/15 07:20	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 12:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1853	Sequence: 1506390	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6000	96.0	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8500	98.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8200	98.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	210685	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	79940	9.73	84046	9.72	
1,4-Difluorobenzene (IS)	315311	7.52	311257	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-4

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-04	File ID:	22APR17.D
Sampled:	04/21/15 08:00	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 12:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-4

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-04	File ID:	22APR17.D
Sampled:	04/21/15 08:00	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 12:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.59	
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.57	
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.14	J
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.30	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-4

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-04	File ID:	22APR17.D
Sampled:	04/21/15 08:00	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 12:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6400	96.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.090	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7800	97.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	207766	6.73	205852	6.74	
Chlorobenzene-d5 (IS)	83381	9.73	84046	9.72	
1,4-Difluorobenzene (IS)	313342	7.52	311257	7.52	

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-2-2Q15

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-05	File ID:	22APR18.D
Sampled:	04/21/15 08:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 13:09
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-2-2Q15

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-05	File ID:	22APR18.D
Sampled:	04/21/15 08:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 13:09
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.51	
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.55	
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.16	J
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.28	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-2-2Q15

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-05	File ID:	22APR18.D
Sampled:	04/21/15 08:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 13:09
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.010	100	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.170	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3900	93.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	202292	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	83625	9.73	84046	9.72	
1,4-Difluorobenzene (IS)	310744	7.52	311257	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-3

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-06	File ID:	22APR19.D
Sampled:	04/21/15 08:40	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 13:32
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1853	Sequence: 1506390	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-3

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-06	File ID:	22APR19.D
Sampled:	04/21/15 08:40	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 13:32
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1853	Sequence:	1506390	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.48	J
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.51	
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.41	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-3

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-06	File ID:	22APR19.D
Sampled:	04/21/15 08:40	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 13:32
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8300	98.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.050	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9200	99.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	201311	6.73	205852	6.74	
Chlorobenzene-d5 (IS)	78950	9.73	84046	9.72	
1,4-Difluorobenzene (IS)	306325	7.52	311257	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-2

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-07	File ID:	22APR20.D
Sampled:	04/21/15 09:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 13:55
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.37	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-2

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-07	File ID:	22APR20.D
Sampled:	04/21/15 09:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 13:55
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.34	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.3	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/8/15 R

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-2

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1509577-07		File ID:	22APR20.D
Sampled:	04/21/15 09:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 13:55
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1853	Sequence: 1506390	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.020	100	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8900	98.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5200	95.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	206460	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	82967	9.72	84046	9.72	
1,4-Difluorobenzene (IS)	310199	7.52	311257	7.52	

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Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-1

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-08	File ID:	22APR21.D
Sampled:	04/21/15 10:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 14:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-1

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-08	File ID:	22APR21.D
Sampled:	04/21/15 10:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 14:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-1

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1509577-08		File ID:	22APR21.D
Sampled:	04/21/15 10:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 14:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1853	Sequence: 1506390	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6500	96.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.030	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8000	98.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	209327	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	83645	9.72	84046	9.72	
1,4-Difluorobenzene (IS)	315863	7.52	311257	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-5

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-09	File ID:	22APR22.D
Sampled:	04/21/15 11:25	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 14:40
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-5

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-09	File ID:	22APR22.D
Sampled:	04/21/15 11:25	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 14:40
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

5/8/15 K

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-5

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-09	File ID:	22APR22.D
Sampled:	04/21/15 11:25	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 14:40
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9900	99.9	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.100	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6800	96.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208955	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	83665	9.73	84046	9.72	
1,4-Difluorobenzene (IS)	311630	7.52	311257	7.52	

6/8/15 ✗

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-4

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-10	File ID:	22APR23.D
Sampled:	04/21/15 12:00	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 15:03
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1853	Sequence: 1506390	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/8/15 Q

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-4

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-10	File ID:	22APR23.D
Sampled:	04/21/15 12:00	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 15:03
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.20	J
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.34	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/8/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-4

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-10	File ID:	22APR23.D
Sampled:	04/21/15 12:00	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 15:03
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8300	98.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.180	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7800	97.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	205033	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	82360	9.72	84046	9.72	
1,4-Difluorobenzene (IS)	310180	7.52	311257	7.52	

6/8/15 g

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-3

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-11	File ID:	22APR07.D
Sampled:	04/21/15 12:35	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 08:59
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1853	Sequence: 1506390	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-3

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-11	File ID:	22APR07.D
Sampled:	04/21/15 12:35	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 08:59
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1853	Sequence: 1506390	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.10	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-3

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-11	File ID:	22APR07.D
Sampled:	04/21/15 12:35	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 08:59
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U LS
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.2700	92.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7600	97.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7100	97.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	206515	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	79328	9.72	84046	9.72	
1,4-Difluorobenzene (IS)	320353	7.52	311257	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-2

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-12	File ID:	22APR24.D
Sampled:	04/21/15 13:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 15:26
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.49	J
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.70	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.080	J
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.15	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/8/15 [illegible]

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-2

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-12	File ID:	22APR24.D
Sampled:	04/21/15 13:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 15:26
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.21	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Project: JPL- GW Monitoring Wells
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Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-2

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-12	File ID:	22APR24.D
Sampled:	04/21/15 13:10	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 15:26
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.010	100	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8600	98.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5200	95.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	207816	6.73	205852	6.74	
Chlorobenzene-d5 (IS)	80744	9.73	84046	9.72	
1,4-Difluorobenzene (IS)	314413	7.52	311257	7.52	

6/8/15 [illegible]

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-1

Laboratory:	BC Laboratories		SDG:	15-09577	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509577-13	File ID:	22APR25.D
Sampled:	04/21/15 13:45	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 15:49
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1853	Sequence: 1506390	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	2.3	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/8/15

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Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-1

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-13	File ID:	22APR25.D
Sampled:	04/21/15 13:45	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 15:49
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:13:20PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-1

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-13	File ID:	22APR25.D
Sampled:	04/21/15 13:45	Prepared:	04/22/15 06:00	Analyzed:	04/22/15 15:49
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1853 Sequence: 1506390 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9500	99.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4500	94.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	207090	6.74	205852	6.74	
Chlorobenzene-d5 (IS)	82836	9.73	84046	9.72	
1,4-Difluorobenzene (IS)	310660	7.52	311257	7.52	

6/8/15

LDC #: 34336B1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-2-15

SDG #: 15-09577 Level III Page: 2 of 2

Laboratory: BC Laboratories, Inc. Reviewer:

2nd Reviewer:

METHOD: GC/MS Volatiles (EPA Method 524.2)

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.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	≤20, r2 / ≤30
IV.	Continuing calibration	SW	≤30
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB=1 ; EB=2
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D=4+5
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	TB-2-4/21/15	1509577-01	Water	04/21/15
2	EB-2-4/21/15	1509577-02	Water	04/21/15
3	MW-4-5	1509577-03	Water	04/21/15
4	MW-4-4	1509577-04	Water	04/21/15
5	DUP-2-2Q15	1509577-05	Water	04/21/15
6	MW-4-3	1509577-06	Water	04/21/15
7	MW-4-2	1509577-07	Water	04/21/15
8	MW-4-1	1509577-08	Water	04/21/15
9	MW-24-5	1509577-09	Water	04/21/15
10	MW-24-4	1509577-10	Water	04/21/15
11	MW-24-3	1509577-11	Water	04/21/15
12	MW-24-2	1509577-12	Water	04/21/15
13	MW-24-1	1509577-13	Water	04/21/15

LDC #: 34336B1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-2-15

SDG #: 15-09577 Level III Page: 2 of 2

Laboratory: BC Laboratories, Inc. Reviewer:

2nd Reviewer:

METHOD: GC/MS Volatiles (EPA Method 524.2)

	Client ID	Lab ID	Matrix	Date
14	MW-24-3MS	1509577-11MS	Water	04/21/15
15	MW-24-3MSD	1509577-11MSD	Water	04/21/15
16				
17				
18				
19				
20				

Notes:

	BYD1853-BLK1						

TARGET COMPOUND WORKSHEET

METHOD: VOA

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

LDC #: 34334B1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS VOA (EPA Method 524.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	04/22/15	1506390-CCV1	B	38.3	all	J/UJ/P (ND)
	↓	1506390-CCV2	PPPP	42.7	↓	↓ ↓

CONCAL.1S5

LDC #: 34336B1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

Compound	Concentration (µg/L) 4	5	RPD
EE	0.59	0.51	15
FF	0.57	0.55	4
CC	0.14	0.16	13
S	0.30	0.28	7

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 4, 2015

Parameters: 1,4-Dioxane

Validation Level: Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09577

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-4-1	1509577-08	Water	04/21/15
MW-24-1	1509577-13	Water	04/21/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

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

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

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

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
1,4-Dioxane - Data Qualification Summary - SDG 15-09577

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 15-09577

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 15-09577

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:14:19PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-1

Laboratory:	BC Laboratories			SDG:	15-09577		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1509577-08		File ID:	27APR019.D	
Sampled:	04/21/15 10:10	Prepared:	04/23/15 12:00		Analyzed:	04/27/15 18:55	
Solids:		Preparation:	EPA 3510B		Initial/Final:	1000 ml / 1 ml	
Batch:	BYD2331	Sequence:	1506718	Calibration:	1505015	Instrument:	MS-B4

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
123-91-1	1,4-Dioxane	1	0.21	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Naphthalene-d8 (Surrogate)	40.000	34.380	86.0	75 - 132	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
1,4-Dioxane-d8 (IS)	3756477	3.49	2753232	3.5	

* Values outside of QC limits

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 12:14:19PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-24-1

Laboratory:	BC Laboratories			SDG:	15-09577
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509577-13	File ID:	27APR020.D
Sampled:	04/21/15 13:45	Prepared:	04/23/15 12:00	Analyzed:	04/27/15 19:16
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 1 ml

Batch: BYD2331 Sequence: 1506718 Calibration: 1505015 Instrument: MS-B4

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
123-91-1	1,4-Dioxane	I	0.21	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Naphthalene-d8 (Surrogate)	40.000	33.620	84.0	75 - 132	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
1,4-Dioxane-d8 (IS)	3608189	3.49	2753232	3.5	

* Values outside of QC limits

6/8/15

LDC #: 34336B2c

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-2-15

SDG #: 15-09577

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer:

2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW846 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.	Sample receipt/Technical holding times	A, A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	r² /≤20
IV.	Continuing calibration	A	≤20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	C.S.
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	MW-4-1	1509577-08	Water	04/21/15
2	MW-24-1	1509577-13	Water	04/21/15
3				
4				
5				
6				
7				
8				
9				

Notes:

	BYD2331-BLK						

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 2, 2015

Parameters: Metals

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09577

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-2-4/21/15	1509577-02	Water	04/21/15
MW-4-5	1509577-03	Water	04/21/15
MW-4-4	1509577-04	Water	04/21/15
DUP-2-2Q15	1509577-05	Water	04/21/15
MW-4-3	1509577-06	Water	04/21/15
MW-4-2	1509577-07	Water	04/21/15
MW-4-1	1509577-08	Water	04/21/15
MW-24-5	1509577-09	Water	04/21/15
MW-24-4	1509577-10	Water	04/21/15
MW-24-3	1509577-11	Water	04/21/15
MW-24-2	1509577-12	Water	04/21/15
MW-24-1	1509577-13	Water	04/21/15
EB-2-4/21/15MS	1509577-02MS	Water	04/21/15
EB-2-4/21/15MSD	1509577-02MSD	Water	04/21/15
EB-2-4/21/15DUP	1509577-02DUP	Water	04/21/15
MW-24-3MS	1509577-11MS	Water	04/21/15
MW-24-3MSD	1509577-11MSD	Water	04/21/15
MW-24-3DUP	1509577-11DUP	Water	04/21/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were pertormed by the following methods:

Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium by Environmental Protection Agency (EPA) Methods 200.7/200.8

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of ICS analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Iron	28.739 ug/L	EB-2-4/21/15 MW-4-5 MW-4-4 DUP-2-2Q15 MW-4-3
PB (prep blank)	Chromium	0.98300 ug/L	EB-2-4/21/15 MW-4-5 MW-4-4 DUP-2-2Q15 MW-4-3 MW-4-2 MW-4-1 MW-24-5 MW-24-4 MW-24-3
PB (prep blank)	Chromium	0.88800 ug/L	MW-24-2 MW-24-1

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Chromium	0.69600 ug/L	EB-2-4/21/15 MW-4-5 MW-4-4 DUP-2-2Q15 MW-4-2 MW-4-1 MW-24-5 MW-24-4 MW-24-3
ICB/CCB	Sodium	0.018902 mg/L	EB-2-4/21/15 MW-4-5
ICB/CCB	Sodium	0.032214 mg/L	MW-4-4 DUP-2-2Q15 MW-4-3
ICB/CCB	Sodium	0.036554 mg/L	MW-4-1 MW-24-5 MW-24-4 MW-24-2 MW-24-1

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-4-4	Chromium	2.9 ug/L	2.9U ug/L
DUP-2-2Q15	Chromium	1.9 ug/L	1.9U ug/L
MW-4-3	Chromium	1.5 ug/L	1.5U ug/L
MW-24-5	Chromium	3.0 ug/L	3.0U ug/L
MW-24-4	Chromium	0.97 ug/L	0.97U ug/L
MW-24-3	Chromium	1.1 ug/L	1.1U ug/L
MW-24-2	Chromium	2.1 ug/L	2.1U ug/L

The absolute value of the contaminant concentrations found in the initial, continuing and preparation blanks were less than the method reporting limit (MRL) with the following exceptions:

Method Blank ID	Analyte	Concentration	MRL	Associated Samples	Flag	A or P
CCB4	Iron	-87.760 ug/L	50.0 ug/L	MW-4-1 MW-24-5 MW-24-4 MW-24-3 MW-24-2	J (all detects) UJ (all non-detects)	A

VI. Field Blanks

Sample EB-2-4/21/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration (mg/L)
EB-2-4/21/15	Sodium	0.18

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

IX. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

X. Laboratory Control Samples (LCS)

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

Samples MW-4-4 and DUP-2-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-4-4	DUP-2-2Q15	
Arsenic	1.2	1.0	18

Analyte	Concentration (ug/L)		RPD
	MW-4-4	DUP-2-2Q15	
Calcium	71000	79000	11
Chromium	2.9	1.9	42
Iron	5900	6900	16
Magnesium	33000	38000	14
Potassium	2900	3200	10
Sodium	39000	44000	12

XII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

XIII. Sample Result Verification

Raw data were not reviewed for Level III validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due negative blank concentration, data were qualified as estimated in five samples.

Due to laboratory blank contamination, data were qualified as not detected in seven samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Metals - Data Qualification Summary - SDG 15-09577

Sample	Analyte	Flag	A or P	Reason
MW-4-1 MW-24-5 MW-24-4 MW-24-3 MW-24-2	Iron	J (all detects) UJ (all non-detects)	A	Laboratory blank (concentration)

NASA JPL, 2Q2015
Metals - Laboratory Blank Data Qualification Summary - SDG 15-09577

Sample	Analyte	Modified Final Concentration	A or P
MW-4-4	Chromium	2.9U ug/L	A
DUP-2-2Q15	Chromium	1.9U ug/L	A
MW-4-3	Chromium	1.5U ug/L	A
MW-24-5	Chromium	3.0U ug/L	A
MW-24-4	Chromium	0.97U ug/L	A
MW-24-3	Chromium	1.1U ug/L	A
MW-24-2	Chromium	2.1U ug/L	A

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02
File ID: PE2_150424-140
Sampled: 04/21/15 06:40
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:16
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U	EPA-200.7

6/8/15

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03
File ID: PE2_150424-146
Sampled: 04/21/15 07:20
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:32
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	3000	1		EPA-200.7

5/8/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2015 4:31:29PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. 2015 Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04
File ID: PE2_150424-150
Sampled: 04/21/15 08:00
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	5900	1		EPA-200.7

6/8/15 8

Tidewater Inc.
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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05
File ID: PE2_150424-151
Sampled: 04/21/15 08:10
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6900	1		EPA-200.7

6/3/15 8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06
File ID: PE2_150424-152
Sampled: 04/21/15 08:40
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	2600	1		EPA-200.7

6/8/15 8

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07
File ID: PE2_150428-134
Sampled: 04/21/15 09:10
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:34
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1000	1		EPA-200.7

6/8/15 8

Tidewater Inc.
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Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08
File ID: PE2_150428-140
Sampled: 04/21/15 10:10
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	280	1	J	EPA-200.7

6/8/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09
File ID: PE2_150428-141
Sampled: 04/21/15 11:25
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:51
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	34	1	J J	EPA-200.7

6/8/15

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Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10
File ID: PE2_150428-142
Sampled: 04/21/15 12:00
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:54
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	40	1	J J	EPA-200.7

6/8/15 8

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:31:29PM
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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11
File ID: PE2_150428-128
Sampled: 04/21/15 12:35
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	33	1	J ~~J~~	EPA-200.7

6/3/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12
File ID: PE2_150428-143
Sampled: 04/21/15 13:10
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U UJ	EPA-200.7

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID: PE2_150428-144
Sampled: 04/21/15 13:45
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:59
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1600	1		EPA-200.7

6/8/15 [illegible]

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02
File ID: PE_EL2_150427-121
Sampled: 04/21/15 06:40
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 17:51
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02RE2
File ID: PE_EL2_150429-199
Sampled: 04/21/15 06:40
Prepared: 04/29/15 17:15
Analyzed: 04/29/15 23:46
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.50	1	U	* EPA-200.8

6/3/15 Q

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03
File ID: PE_EL2_150427-122
Sampled: 04/21/15 07:20
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 17:54
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15 8

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03RE2
File ID: PE_EL2_150429-200
Sampled: 04/21/15 07:20
Prepared: 04/29/15 17:15
Analyzed: 04/29/15 23:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8

6/8/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04
File ID: PE_EL2_150427-123
Sampled: 04/21/15 08:00
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 17:58
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.2	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15 8

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2015 4:31:29PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. 2015 Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04RE2
File ID: PE_EL2_150429-201
Sampled: 04/21/15 08:00
Prepared: 04/29/15 17:15
Analyzed: 04/29/15 23:52
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	2.9	1	J U	EPA-200.8

6/8/15 R

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05
File ID: PE_EL2_150427-124
Sampled: 04/21/15 08:10
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 18:01
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.0	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05RE2
File ID: PE_EL2_150429-202
Sampled: 04/21/15 08:10
Prepared: 04/29/15 17:15
Analyzed: 04/29/15 23:55
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	1.9	1	J U	EPA-200.8

6/8/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06
File ID: PE_EL2_150427-125
Sampled: 04/21/15 08:40
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 18:04
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06RE2
File ID: PE_EL2_150429-183
Sampled: 04/21/15 08:40
Prepared: 04/29/15 17:15
Analyzed: 04/29/15 22:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	1.5	1	J U	EPA-200.8

6/8/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07
File ID: PE_EL2_150427-126
Sampled: 04/21/15 09:10
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 18:07
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07RE2
File ID: PE_EL2_150429-203
Sampled: 04/21/15 09:10
Prepared: 04/29/15 17:15
Analyzed: 04/29/15 23:59
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	8.3	1		EPA-200.8

6/8/15 [illegible]

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08
File ID: PE_EL2_150427-127
Sampled: 04/21/15 10:10
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 18:10
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08RE2
File ID: PE_EL2_150429-204
Sampled: 04/21/15 10:10
Prepared: 04/29/15 17:15
Analyzed: 04/30/15 00:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8

6/8/15 Q

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09
File ID: PE_EL2_150427-128
Sampled: 04/21/15 11:25
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 18:13
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.4	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15 Q

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09RE2
File ID: PE_EL2_150429-205
Sampled: 04/21/15 11:25
Prepared: 04/29/15 17:15
Analyzed: 04/30/15 00:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	3.0	1	U	EPA-200.8

6/8/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10
File ID: PE_EL2_150427-129
Sampled: 04/21/15 12:00
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 18:17
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.99	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10RE2
File ID: PE_EL2_150429-206
Sampled: 04/21/15 12:00
Prepared: 04/29/15 17:15
Analyzed: 04/30/15 00:08
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.97	1	J U	EPA-200.8

6/8/15 T

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11
File ID: PE_EL2_150427-112
Sampled: 04/21/15 12:35
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 17:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2281
Sequence: 1506707
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.6	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11RE2
File ID: PE_EL2_150429-207
Sampled: 04/21/15 12:35
Prepared: 04/29/15 17:15
Analyzed: 04/30/15 00:11
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2583
Sequence: 1506869
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	1.1	1	J U	EPA-200.8

6/8/15 ✓

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12
File ID: PE_EL2_150427-174
Sampled: 04/21/15 13:10
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 21:24
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2282
Sequence: 1506693
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.7	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12RE2
File ID: PE_EL2_150430-101
Sampled: 04/21/15 13:10
Prepared: 04/30/15 09:00
Analyzed: 04/30/15 15:54
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2641
Sequence: 1506961
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	2.1	1	J U	EPA-200.8

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Tidewater Inc.
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INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID: PE_EL2_150427-175
Sampled: 04/21/15 13:45
Prepared: 04/27/15 08:30
Analyzed: 04/27/15 21:27
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2282
Sequence: 1506693
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Tidewater Inc.
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Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13RE2
File ID: PE_EL2_150430-102
Sampled: 04/21/15 13:45
Prepared: 04/30/15 09:00
Analyzed: 04/30/15 15:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2641
Sequence: 1506961
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	10	1		EPA-200.8

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02
File ID: PE2 150424-140
Sampled: 04/21/15 06:40
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:16
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.018	1	U	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.18	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

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Reported: 5/19/2015 4:31:29PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03
File ID: PE2_150424-146
Sampled: 04/21/15 07:20
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:32
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	56	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	29	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04
File ID: PE2_150424-150
Sampled: 04/21/15 08:00
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	71	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	33	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	39	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05
File ID: PE2_150424-151
Sampled: 04/21/15 08:10
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	79	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	38	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	44	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06
File ID: PE2_150424-152
Sampled: 04/21/15 08:40
Prepared: 04/23/15 11:30
Analyzed: 04/24/15 18:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2068
Sequence: 1506812
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	93	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	38	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07
File ID: PE2_150428-134
Sampled: 04/21/15 09:10
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:34
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	140	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	54	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	39	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

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Project Number: 2nd Qtr. 2015
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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08
File ID: PE2_150428-140
Sampled: 04/21/15 10:10
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	95	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	33	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	27	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.9	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09
File ID: PE2_150428-141
Sampled: 04/21/15 11:25
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:51
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	32	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	10	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	40	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.8	1		EPA-200.7

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Project Number: 2nd Qtr. 2015
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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10
File ID: PE2_150428-142
Sampled: 04/21/15 12:00
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:54
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	5.4	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	5.1	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	33	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.6	1		EPA-200.7

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11
File ID: PE2_150428-128
Sampled: 04/21/15 12:35
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	19	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	11	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	45	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.0	1		EPA-200.7

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12
File ID: PE2_150428-143
Sampled: 04/21/15 13:10
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	49	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	17	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	45	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID: PE2_150428-144
Sampled: 04/21/15 13:45
Prepared: 04/27/15 08:30
Analyzed: 04/28/15 16:59
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2285
Sequence: 1506851
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	69	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	24	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	39	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.9	1		EPA-200.7

6/8/15

LDC #: 34336B4a

SDG #: 15-09577

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 5-28-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

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.	Sample receipt/Technical holding times	A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	SW	EB = 1
VII.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VIII.	Duplicate sample analysis	A	DUP #15: Na OK by difference #21: Cr OK by difference
IX.	ICP Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	SW	D = 3+4
XII.	Internal Standard (ICP-MS)	N	not reviewed for level III
XIII.	Sample Result Verification	N	
XIV.	Overall Assessment of Data	A	

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; SB=Source blank; OTHER:

		Client ID	Lab ID	Matrix	Date
1	1	EB-2-4/21/15	1509577-02	Water	04/21/15
2	1	MW-4-5	1509577-03	Water	04/21/15
3	1	MW-4-4	1509577-04	Water	04/21/15
4	1	DUP-2-2Q15	1509577-05	Water	04/21/15
5	1	MW-4-3	1509577-06	Water	04/21/15
6	2	MW-4-2	1509577-07	Water	04/21/15
7	2	MW-4-1	1509577-08	Water	04/21/15
8	2	MW-24-5	1509577-09	Water	04/21/15
9	2	MW-24-4	1509577-10	Water	04/21/15
10	2	MW-24-3	1509577-11	Water	04/21/15
11	2	MW-24-2	1509577-12	Water	04/21/15
12	2	MW-24-1	1509577-13	Water	04/21/15
13	1	EB-2-4/21/15MS	1509577-02MS	Water	04/21/15
14	1	EB-2-4/21/15MSD	1509577-02MSD	Water	04/21/15
15	1	EB-2-4/21/15DUP	1509577-02DUP	Water	04/21/15

LDC #: 34336B4a

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 5-28-15

SDG #: 15-09577

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16 2	MW-24-3MS	1509577-11MS	Water	04/21/15
17 2	MW-24-3MSD	1509577-11MSD	Water	04/21/15
18 2	MW-24-3DUP	1509577-11DUP	Water	04/21/15
19 1	#5 MS			
20 1	#5 MSD			
21 1	#5 DUP			
22				
23				

Notes:

200.8 was batched differently than 200.7

PBW1

PBW2

LDC #: 34336B4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: MG
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1→12	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
QC 13→15	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
16→18	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
19→21	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
Analysis Method		
ICP	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
ICP-MS	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____

Comments: Mercury by CVAA if performed

LDC #: 34336B4a
SDG #: —

VALIDATION FINDINGS WORKSHEET
Negative Blanks

Page: 1 of 1
Reviewer: MG
2nd Reviewer:

METHOD: Trace Metals (EPA SW 846 Method 6010/7000)
The absolute value of the negative blank conentrations listed below exceeded the MDL
— (µg/L) —

#	Blank ID	Analyte	Negative Blank Concentration	MRL ~~MDL~~	Associated Samples	Qualifications
1	CCB4	Fe	-87.760	50.0	11	UJ (all ND)
		↓	↓	↓	7→10	J (all dets)
					6, 12	No Qual (> 10x RL)

Comments:

NEGBLANK.4SW.wpd

LDC #: 34336B4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA

Reviewer: MG
2nd Reviewer: [illegible]

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1-5 (>5x or ND)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	No Qual's.									
Fe			28.739	143.7										

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1-10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	3	4	5	8	9	10				
Cr		0.98300		4.915	2.9	1.9	1.5	3.0	0.97	1.1				

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 11,12

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	11									
Cr		0.88800		4.440	2.1									

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1-4,6-10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	3	4	8	9	10					
Cr			0.69600	3.480	see PB	see PB	see PB	see PB	see PB					

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1,2 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na			0.018902	0.0945										

LDC #: 34336B4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA
Associated Samples: 3-5 (>5x)

Reviewer: MG
2nd Reviewer: [illegible]

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na			0.032214	0.1611										

Sample Concentration units, unless otherwise noted: mg/L
Associated Samples: 7-9,11,12 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na			0.036554	0.1828										

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

LDC #: 34336B4a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: ~~X~~

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

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

Sample: 1 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units (mg/L)
Na	0.18

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Analyte	Concentration Units ( )

LDC#: 34336B4a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

Analyte	Concentration (ug/L)		RPD	
	3	4		
Arsenic	1.2	1.0	18	
Calcium	71000	79000	11	
Chromium	2.9	1.9	42	
Iron	5900	6900	16	
Magnesium	33000	38000	14	
Potassium	2900	3200	10	
Sodium	39000	44000	12	

V:\FIELD DUPLICATES\FD_inorganic\34336B4a.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 1Q2015

LDC Report Date: June 3, 2015

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09577

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-2-4/21/15	1509577-02	Water	04/21/15
MW-4-5	1509577-03	Water	04/21/15
MW-4-4	1509577-04	Water	04/21/15
DUP-2-2Q15	1509577-05	Water	04/21/15
MW-4-3	1509577-06	Water	04/21/15
MW-4-2	1509577-07	Water	04/21/15
MW-4-1	1509577-08	Water	04/21/15
MW-24-5	1509577-09	Water	04/21/15
MW-24-4	1509577-10	Water	04/21/15
MW-24-3	1509577-11	Water	04/21/15
MW-24-2	1509577-12	Water	04/21/15
MW-24-1	1509577-13	Water	04/21/15
EB-2-4/21/15MS	1509577-02MS	Water	04/21/15
EB-2-4/21/15MSD	1509577-02MSD	Water	04/21/15
EB-2-4/21/15DUP	1509577-02DUP	Water	04/21/15
MW-24-3MS	1509577-11MS	Water	04/21/15
MW-24-3MSD	1509577-11MSD	Water	04/21/15
MW-24-3DUP	1509577-11DUP	Water	04/21/15
MW-24-2MS	1509577-12MS	Water	04/21/15
MW-24-2MSD	1509577-12MSD	Water	04/21/15
MW-24-2DUP	1509577-12DUP	Water	04/21/15
MW-24-1MS	1509577-13MS	Water	04/21/15
MW-24-1MSD	1509577-13MSD	Water	04/21/15
MW-24-1DUP	1509577-13DUP	Water	04/21/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Hexavalent Chromium by EPA SW 846 Method 7196
Nitrite as Nitrogen by EPA Method 353.2
Orthophosphate as Phosphorus by EPA Method 365.1
Perchlorate by EPA Method 314.0
pH by EPA Method 150.1
Total Dissolved Solids by EPA Method 160.1

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB-2-4/21/15	pH	59.78 hours	48 hours	J (all detects)	P
MW-4-5	pH	59.28 hours	48 hours	J (all detects)	P
MW-4-4	pH	58.75 hours	48 hours	J (all detects)	P
DUP-2-2Q15	pH	58.72 hours	48 hours	J (all detects)	P
MW-4-3	pH	58.32 hours	48 hours	J (all detects)	P
MW-4-2	pH	57.93 hours	48 hours	J (all detects)	P
MW-4-1	pH	57.05 hours	48 hours	J (all detects)	P
MW-24-5	pH	55.97 hours	48 hours	J (all detects)	P
MW-24-4	pH	55.50 hours	48 hours	J (all detects)	P
MW-24-3	pH	55.02 hours	48 hours	J (all detects)	P
MW-24-2	pH	54.85 hours	48 hours	J (all detects)	P
MW-24-1	pH	54.52 hours	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method(s). No contaminants were found in the laboratory blanks.

V. Field Blanks

Sample EB-2-4/21/15 was identified as an equipment. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-2-4/21/15	pH Chloride Nitrate as N Sulfate	4.93 pH units 0.36 mg/L 0.17 mg/L 0.30 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
MW-24-3MS/MSD (MW-24-5 MW-24-3)	Hexavalent chromium	83.8 (85-115)	83.3 (85-115)	UJ (all non-detects)	A

Relative percent differences (RPD) were within QC limits.

VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples MW-4-4 and DUP-2-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-4-4	DUP-2-2Q15	
Total Alkalinity	180 mg/L	180 mg/L	0

Analyte	Concentration		RPD
	MW-4-4	DUP-2-2Q15	
Bicarbonate	210 mg/L	210 mg/L	0
Chloride	110 mg/L	110 mg/L	0
pH	7.97 pH units	8.03 pH units	1
Sulfate	36 mg/L	37 mg/L	3
Total dissolved solids	450 mg/L	450 mg/L	0

X. Sample Result Verification

Raw data were not reviewed for Level III validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to technical holding time and MS/MSD %R, data were qualified as estimated in twelve samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 1Q2015
Wet Chemistry - Data Qualification Summary - SDG 15-09577

Sample	Analyte	Flag	A or P	Reason
EB-2-4/21/15 MW-4-5 MW-4-4 DUP-2-2Q15 MW-4-3 MW-4-2 MW-4-1 MW-24-5 MW-24-4 MW-24-3 MW-24-2 MW-24-1	pH	J (all detects)	P	Technical holding time
MW-24-5 MW-24-3	Hexavalent chromium	UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)

NASA JPL, 1Q2015
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 15-09577

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02
File ID: Tiamo042315-083
Sampled: 04/21/15 06:40
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	4.93	1	J	EPA-150.1

4/4/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03
File ID: Tiamo042315-085
Sampled: 04/21/15 07:20
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.82	1	J	EPA-150.1

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04
File ID: Tiamo042315-086
Sampled: 04/21/15 08:00
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.97	1	J	EPA-150.1

6/9/15 9

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05
File ID: Tiamo042315-087
Sampled: 04/21/15 08:10
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.03	1	J	EPA-150.1

5/9/15 J

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06
File ID: Tiamo042315-088
Sampled: 04/21/15 08:40
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.93	1	J	EPA-150.1

6/9/15 8

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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07
File ID: Tiamo042315-089
Sampled: 04/21/15 09:10
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.63	1	4	EPA-150.1

6/9/15

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08
File ID: Tiamo042315-090
Sampled: 04/21/15 10:10
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.53	1		EPA-150.1

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09
File ID: Tiamo042315-091
Sampled: 04/21/15 11:25
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:23
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.16	1	J	EPA-150.1

6/2/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10
File ID: Tiamo042315-092
Sampled: 04/21/15 12:00
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.20	1	J	EPA-150.1

6/9/15 [illegible]

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11
File ID: Tiamo042315-093
Sampled: 04/21/15 12:35
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.36	1	J	EPA-150.1

6/9/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12
File ID: Tiamo042315-098
Sampled: 04/21/15 13:10
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 20:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2119
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.98	1	4	EPA-150.1

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID: Tiamo042315-100
Sampled: 04/21/15 13:45
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 20:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2119
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.68	1	A	EPA-150.1

6/9/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02
File ID:
Sampled: 04/21/15 06:40
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	6.7	0.667	UD	EPA-160.1

6/9/15 J

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03
File ID:
Sampled: 04/21/15 07:20
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	390	2	D	EPA-160.1

4/29/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04
File ID:
Sampled: 04/21/15 08:00
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	450	3.33	D	EPA-160.1

6/9/15

Tidewater Inc.
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05
File ID:
Sampled: 04/21/15 08:10
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	450	3.33	D	EPA-160.1

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06
File ID:
Sampled: 04/21/15 08:40
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	520	3.33	D	EPA-160.1

6/9/15 9

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Tidewater Inc.
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07
File ID:
Sampled: 04/21/15 09:10
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	760	5	D	EPA-160.1

6/9/15 9

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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08
File ID:
Sampled: 04/21/15 10:10
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	460	3.33	D	EPA-160.1

5/19/15

Tidewater Inc.
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09
File ID:
Sampled: 04/21/15 11:25
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	240	2	D	EPA-160.1

6/9/15 9

Tidewater Inc.
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10
File ID:
Sampled: 04/21/15 12:00
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	140	1		EPA-160.1

6/9/15

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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11
File ID:
Sampled: 04/21/15 12:35
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2210
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	230	2	D	EPA-160.1

6/9/15 D

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12
File ID:
Sampled: 04/21/15 13:10
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2209
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	340	2	D	EPA-160.1

6/9/15

Tidewater Inc.
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID:
Sampled: 04/21/15 13:45
Prepared: 04/24/15 13:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2209
Sequence: 1506934
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	450	3.33	D	EPA-160.1

6/9/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02
File ID: E042215.seq-10
Sampled: 04/21/15 06:40
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 05:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.36	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.17	1		EPA-300.0
14808-79-8	Sulfate	0.30	1	J	EPA-300.0

4/9/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03
File ID: E042215.seq-11
Sampled: 04/21/15 07:20
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 05:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	97	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	3.2	1		EPA-300.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04
File ID: E042215.seq-12
Sampled: 04/21/15 08:00
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 05:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	110	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	36	1		EPA-300.0

6/9/15 g

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05
File ID: E042215.seq-13
Sampled: 04/21/15 08:10
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 06:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	110	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	37	1		EPA-300.0

6/2/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06
File ID: E042215.seq-16
Sampled: 04/21/15 08:40
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 06:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	110	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	100	1		EPA-300.0

6/9/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07
File ID: E042215.seq-17
Sampled: 04/21/15 09:10
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 07:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	120	1		EPA-300.0
14797-55-8	Nitrate as N	12	1		EPA-300.0
14808-79-8	Sulfate	180	1		EPA-300.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08
File ID: E042215.seq-18
Sampled: 04/21/15 10:10
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 07:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	16	1		EPA-300.0
14797-55-8	Nitrate as N	3.1	1		EPA-300.0
14808-79-8	Sulfate	35	1		EPA-300.0

6/9/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09
File ID: E042215.seq-19
Sampled: 04/21/15 11:25
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 07:49
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: I506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	8.2	1		EPA-300.0
14797-55-8	Nitrate as N	0.99	1		EPA-300.0
14808-79-8	Sulfate	20	1		EPA-300.0

6/9/15 8

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10
File ID: E042215.seq-20
Sampled: 04/21/15 12:00
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 08:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	24	1		EPA-300.0
14797-55-8	Nitrate as N	0.036	1	J	EPA-300.0
14808-79-8	Sulfate	2.9	1		EPA-300.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11
File ID: E042215.seq-06
Sampled: 04/21/15 12:35
Prepared: 04/22/15 01:00
Analyzed: 04/22/15 04:03
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1868
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	23	1		EPA-300.0
14797-55-8	Nitrate as N	0.074	1	J	EPA-300.0
14808-79-8	Sulfate	4.6	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12
File ID: E042215.seq-23
Sampled: 04/21/15 13:10
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 08:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1869
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	51	1		EPA-300.0
14797-55-8	Nitrate as N	1.8	1		EPA-300.0
14808-79-8	Sulfate	26	1		EPA-300.0

6/9/15 g

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID: E042215.seq-29
Sampled: 04/21/15 13:45
Prepared: 04/22/15 08:00
Analyzed: 04/22/15 10:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1869
Sequence: 1506536
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	87	1		EPA-300.0
14797-55-8	Nitrate as N	1.4	1		EPA-300.0
14808-79-8	Sulfate	48	1		EPA-300.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02RE1
File ID: F042915.seq-34.0000.txt
Sampled: 04/21/15 06:40
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 16:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

5/19/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03RE1
File ID: F042915.seq-35.0000.txt
Sampled: 04/21/15 07:20
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 16:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04RE1
File ID: F042915.seq-36.0000.txt
Sampled: 04/21/15 08:00
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 17:09
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05RE1
File ID: F042915.seq-37.0000.txt
Sampled: 04/21/15 08:10
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 17:23
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06RE1
File ID: F042915.seq-38.0000.txt
Sampled: 04/21/15 08:40
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 17:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07RE1
File ID: F042915.seq-39.0000.txt
Sampled: 04/21/15 09:10
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 17:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	7.2	1		EPA-314.0

6/9/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08RE1
File ID: F042915.seq-41.0000.txt
Sampled: 04/21/15 10:10
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 18:18
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09RE1
File ID: F042915.seq-42.0000.txt
Sampled: 04/21/15 11:25
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 18:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10RE1
File ID: F042915.seq-43.0000.txt
Sampled: 04/21/15 12:00
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 18:46
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15 R

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11RE1
File ID: F042915.seq-68.0000.txt
Sampled: 04/21/15 12:35
Prepared: 04/29/15 08:00
Analyzed: 04/30/15 09:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2605
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12RE1
File ID: F042915.seq-66.0000.txt
Sampled: 04/21/15 13:10
Prepared: 04/29/15 08:00
Analyzed: 04/30/15 09:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2604
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.1	1		EPA-314.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13RE1
File ID: F042915.seq-69.0000.txt
Sampled: 04/21/15 13:45
Prepared: 04/29/15 08:00
Analyzed: 04/30/15 09:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2605
Sequence: 1507091
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	66	5	D	EPA-314.0

6/9/15 8

BC Laboratories, Inc.
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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2015 4:55:21PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. 2015 Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02
File ID: 150422 0841 NO2-033
Sampled: 04/21/15 06:40
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03
File ID: 150422 0841 NO2-034
Sampled: 04/21/15 07:20
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04
File ID: 150422 0841 NO2-035
Sampled: 04/21/15 08:00
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05
File ID: 150422 0841 NO2-036
Sampled: 04/21/15 08:10
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06
File ID: 150422 0841 NO2-037
Sampled: 04/21/15 08:40
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07
File ID: 150422 0841 NO2-038
Sampled: 04/21/15 09:10
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08
File ID: 150422 0841 NO2-041
Sampled: 04/21/15 10:10
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09
File ID: 150422 0841 NO2-042
Sampled: 04/21/15 11:25
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10
File ID: 150422 0841 NO2-043
Sampled: 04/21/15 12:00
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11
File ID: 150422 0841 NO2-029
Sampled: 04/21/15 12:35
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1935
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12
File ID: 150422 0841 NO2-058
Sampled: 04/21/15 13:10
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1934
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID: 150422 0841 NO2-019
Sampled: 04/21/15 13:45
Prepared: 04/22/15 08:41
Analyzed: 04/22/15 08:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD1934
Sequence: 1506612
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

5/9/15 a

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-365.1

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID: 150422 0810 PO4-007
Sampled: 04/21/15 13:45
Prepared: 04/22/15 08:10
Analyzed: 04/22/15 08:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2177
Sequence: 1506629
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.0057	1	U	EPA-365.1

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02
File ID: 150422 0018 CR6-011
Sampled: 04/21/15 06:40
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:18
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03
File ID: 150422 0018 CR6-012
Sampled: 04/21/15 07:20
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:18
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15 D

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04
File ID: 150422 0018 CR6-013
Sampled: 04/21/15 08:00
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:18
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05
File ID: 150422 0018 CR6-014
Sampled: 04/21/15 08:10
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:18
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15 Q

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Tidewater Inc.
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06
File ID: 150422 0018 CR6-017
Sampled: 04/21/15 08:40
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07
File ID: 150422 0018 CR6-018
Sampled: 04/21/15 09:10
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15 8

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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08
File ID: 150422 0018 CR6-019
Sampled: 04/21/15 10:10
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15 8

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3761 Attucks Drive
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09
File ID: 150422 0018 CR6-053
Sampled: 04/21/15 11:25
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 01:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2172
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD UJ	EPA-7196

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10
File ID: 150422 0018 CR6-021
Sampled: 04/21/15 12:00
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15 8

Tidewater Inc.
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Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11
File ID: 150422 0018 CR6-035
Sampled: 04/21/15 12:35
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 01:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2172
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD U	EPA-7196

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12
File ID: 150422 0018 CR6-024
Sampled: 04/21/15 13:10
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0014	1	J	EPA-7196

6/9/15

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2015 4:55:21PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. 2015 Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID: 150422 0018 CR6-030
Sampled: 04/21/15 13:45
Prepared: 04/22/15 00:18
Analyzed: 04/22/15 00:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2174
Sequence: 1506607
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

EB-2-4/21/15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-02
File ID: Tiamo042315-083
Sampled: 04/21/15 06:40
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.0	1	U	SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.1	1	U	SM-2320B

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-03
File ID: Tiamo042315-085
Sampled: 04/21/15 07:20
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	210	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	170	1		SM-2320B

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-04
File ID: Tiamo042315-086
Sampled: 04/21/15 08:00
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	210	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	180	1		SM-2320B

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

DUP-2-2Q15

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-05
File ID: Tiamo042315-087
Sampled: 04/21/15 08:10
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	210	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	180	1		SM-2320B

6/9/15 [illegible]

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-06
File ID: Tiamo042315-088
Sampled: 04/21/15 08:40
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 18:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	230	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	190	1		SM-2320B

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Tidewater Inc.
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-07
File ID: Tiamo042315-089
Sampled: 04/21/15 09:10
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	280	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	230	2	D	SM-2320B

6/9/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-08
File ID: Tiamo042315-090
Sampled: 04/21/15 10:10
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	420	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	350	1		SM-2320B

6/9/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-24-5

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-09
File ID: Tiamo042315-091
Sampled: 04/21/15 11:25
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:23
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	200	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	160	1		SM-2320B

6/9/15 g

Tidewater Inc.
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Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-24-4

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-10
File ID: Tiamo042315-092
Sampled: 04/21/15 12:00
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	55	1		SM-2320B
3812-32-6	Carbonate	12	1		SM-2320B
---	Total Alkalinity as CaCO3	66	1		SM-2320B

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-24-3

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-11
File ID: Tiamo042315-093
Sampled: 04/21/15 12:35
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 19:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2118
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	160	1		SM-2320B
3812-32-6	Carbonate	3.1	1		SM-2320B
---	Total Alkalinity as CaCO3	140	1		SM-2320B

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-24-2

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-12
File ID: Tiamo042315-098
Sampled: 04/21/15 13:10
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 20:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2119
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	210	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	170	1		SM-2320B

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2015 4:55:21PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-24-1

Laboratory: BC Laboratories
SDG: 15-09577
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509577-13
File ID: Tiamo042315-100
Sampled: 04/21/15 13:45
Prepared: 04/23/15 08:00
Analyzed: 04/23/15 20:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2119
Sequence: 1506601
Calibration: UNASSIGNED
Instrument: MET-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	230	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	180	1		SM-2320B

6/9/15 8

LDC #: 34336B6

SDG #: 15-09577

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 5-28-15

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Orthophosphate-P (EPA Method 365.1), Perchlorate (EPA Method 314.0), pH (EPA Method 150.1), TDS (EPA Method 160.1)

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.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	SW	EB = 1
VI.	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD
VII.	Duplicate sample analysis	A	DUP #18: NO3-N, SO4 OK by difference
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	D = 3+4
X.	Sample result verification	N	
XI	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	EB-2-4/21/15	1509577-02	Water	04/21/15
2	MW-4-5	1509577-03	Water	04/21/15
3	MW-4-4	1509577-04	Water	04/21/15
4	DUP-2-2Q15	1509577-05	Water	04/21/15
5	MW-4-3	1509577-06	Water	04/21/15
6	MW-4-2	1509577-07	Water	04/21/15
7	MW-4-1	1509577-08	Water	04/21/15
8	MW-24-5	1509577-09	Water	04/21/15
9	MW-24-4	1509577-10	Water	04/21/15
10	MW-24-3	1509577-11	Water	04/21/15
11	MW-24-2	1509577-12	Water	04/21/15
12	MW-24-1	1509577-13	Water	04/21/15
13	EB-2-4/21/15MS	1509577-02MS	Water	04/21/15
14	EB-2-4/21/15MSD	1509577-02MSD	Water	04/21/15
15	EB-2-4/21/15DUP	1509577-02DUP	Water	04/21/15
16	MW-24-3MS	1509577-11MS	Water	04/21/15

LDC #: 34336B6

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 5-28-15

SDG #: 15-09577

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Orthophosphate-P (EPA Method 365.1), Perchlorate (EPA Method 314.0) pH (EPA Method 150.1), TDS (EPA Method 160.1)

	Client ID	Lab ID	Matrix	Date
17	MW-24-3MSD	1509577-11MSD	Water	04/21/15
18	MW-24-3DUP	1509577-11DUP	Water	04/21/15
19	MW-24-2MS	1509577-12MS	Water	04/21/15
20	MW-24-2MSD	1509577-12MSD	Water	04/21/15
21	MW-24-2DUP	1509577-12DUP	Water	04/21/15
22	MW-24-1MS	1509577-13MS	Water	04/21/15
23	MW-24-1MSD	1509577-13MSD	Water	04/21/15
24	MW-24-1DUP	1509577-13DUP	Water	04/21/15
25				
26				
27				
28	PBW			
29	PBW			

Notes:

LDC #: 34336B6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer: [illegible]

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→11	W	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
12		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
QC 13, 14		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
15		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
16, 17		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
18		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
19, 20		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
21		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
22→24		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 34336B6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

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

All circled dates have exceeded the technical holding time.
(Y)N N/A Were all samples preserved as applicable to each method ?
(Y)N N/A Were all cooler temperatures within validation criteria?

Method:		150.1					
Parameters:		pH					
Technical holding time:		48 hr					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
1	06:40 4-21-15	18:27 4-23-15	(59.78 hr)				J/UJ/P (all dets
2	07:20 4-21-15	18:37 4-23-15	(59.28)				
3	08:00 4-21-15	18:45 4-23-15	(58.75)				
4	08:10 4-21-15	18:53 4-23-15	(58.72)				
5	08:40 4-21-15	18:59 4-23-15	(58.32)				
6	09:10 4-21-15	19:06 4-23-15	(57.93)				
7	10:10 4-21-15	19:13 4-23-15	(57.05)				
8	11:25 4-21-15	19:23 4-23-15	(55.97)				
9	12:00 4-21-15	19:30 4-23-15	(55.50)				
10	12:35 4-21-15	19:36 4-23-15	(55.02)				
11	13:10 4-21-15	20:01 4-23-15	(54.85)				
12	13:45 4-21-15	20:16 4-23-15	(54.52)				
15	06:40 4-21-15	18:32 4-23-15	(59.87)				
21	13:10 4-21-15	20:08 4-23-15	(54.97)				

LDC #: 34336B6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: ✗

METHOD: Inorganics, EPA Method see cover

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

Sample: 1 Field Blank / Trip Blank / Rinsate (circle one) EB

Analyte	Concentration Units ( )
pH	4.93 (pH units)
Cl	0.36 (mg/L)
NO3-N	0.17 (↓)
SO4	0.30 (↓)

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Analyte	Concentration Units ( )

LDC #: 34336B6

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: MG
2nd Reviewer: 4

METHOD: Inorganics, EPA Method see cover

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

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

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

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

LEVEL IV ONLY:

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

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	16/17	water	Cr VI	83.8 (85-115)	83.3 (85-115)		8, 10	J/UJ/A (all ND)

Comments:

MSD.6

LDC# 34336B6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: [illegible]

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD	
	3	4		
Total Alkalinity	180	180	0	
Bicarbonate	210	210	0	
Chloride	110	110	0	
pH (pH units)	7.97	8.03	1	
Sulfate	36	37	3	
TDS	450	450	0	

V:\FIELD DUPLICATES\FD_inorganic\34336B6.WPD

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Tidewater, Inc.
199 Shell Street
Manhattan Beach, CA 90266
ATTN: Mr. David Conner

June 9, 2015

SUBJECT: NASA JPL, 2Q2015, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on May 26, 2015. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #34351:

SDG #	Fraction
15-09718, 15-09842	Volatiles, 1,4-Dioxane, Metals, Wet Chemistry

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

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

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

Sincerely,

Pei Geng
Project Manager/Senior Chemist

HC

Attachment 1

90/10 (client select)

LDC #34351 (Tidewater- Manhattan Beach, CA / NASA JPL, 2Q2015)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		1,4-Dioxane (8270C)		Metals (200.7 /200.8)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_2-N (353.2)		Cr(VI) (7196)		CLO_4 (314.0)		pH (150.1)		TDS (150.1)															
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	15-09718	05/26/15	06/16/15	8	0	1	0	7	0	7	0	7	0	7	0	7	0	7	0	7	0	7	0														
A	15-09718	05/26/15	06/16/15	3	0	0	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0														
B	15-09842	05/26/15	06/16/15	16	0	-	-	15	0	15	0	15	0	15	0	15	0	15	0	15	0	15	0														
Total	A/PG			27	0	1	0	25	0	25	0	25	0	25	0	25	0	25	0	25	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	228

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

L:\Tidewater\NASA JPL\34351ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 5, 2015

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09718

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-3-4/22/15	15-09718-01	Water	04/22/15
EB-3-4/22/15	15-09718-02	Water	04/22/15
MW-20-5**	15-09718-03**	Water	04/22/15
MW-20-4	15-09718-04	Water	04/22/15
MW-20-3	15-09718-05	Water	04/22/15
MW-20-2	15-09718-06	Water	04/22/15
MW-17-5**	15-09718-07**	Water	04/22/15
MW-17-4	15-09718-08	Water	04/22/15
MW-17-3	15-09718-09	Water	04/22/15
MW-17-2**	15-09718-10**	Water	04/22/15
MW-17-1	15-09718-11	Water	04/22/15
MW-20-3MS	15-09718-05MS	Water	04/22/15
MW-20-3MSD	15-09718-05MSD	Water	04/22/15

**Indicates sample underwent EPA Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

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 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/23/15 (1506482)	Bromomethane Methyl iodide Pentachloroethane	52.8 47.6 35.1	All samples in SDG 15-09718	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-3-4/22/15 was identified as a trip blank. No contaminants were found.

Sample EB-3-4/22/15 was identified as an equipment blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D, data were qualified as estimated in eleven samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (UJ) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Volatiles - Data Qualification Summary - SDG 15-09718

Sample	Compound	Flag	A or P	Reason
TB-3-4/22/15 EB-3-4/22/15 MW-20-5** MW-20-4 MW-20-3 MW-20-2 MW-17-5** MW-17-4 MW-17-3 MW-17-2** MW-17-1	Bromomethane Methyl iodide Pentachloroethane	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL, 2Q2015
Volatiles - Laboratory Blank Data Qualification Summary - SDG 15-09718

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-3-4/22/15

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-01	File ID:	23APR12.D
Sampled:	04/22/15 06:15	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 10:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/9/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-3-4/22/15

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-01	File ID:	23APR12.D
Sampled:	04/22/15 06:15	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 10:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-3-4/22/15

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-01	File ID:	23APR12.D
Sampled:	04/22/15 06:15	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 10:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1969	Sequence: 1506482	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6700	96.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.090	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5800	95.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208200	6.74	195960	6.73	
Chlorobenzene-d5 (IS)	82325	9.73	81433	9.72	
1,4-Difluorobenzene (IS)	314920	7.52	303672	7.52	

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-3-4/22/15

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-02	File ID:	23APR13.D
Sampled:	04/22/15 06:30	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 11:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-3-4/22/15

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-02	File ID:	23APR13.D
Sampled:	04/22/15 06:30	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 11:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-3-4/22/15

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-02	File ID:	23APR13.D
Sampled:	04/22/15 06:30	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 11:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5200	95.2	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.060	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5400	95.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	206960	6.74	195960	6.73	
Chlorobenzene-d5 (IS)	80712	9.73	81433	9.72	
1,4-Difluorobenzene (IS)	314964	7.52	303672	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-5

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-03	File ID:	23APR14.D
Sampled:	04/22/15 07:00	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 11:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-5

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-03	File ID:	23APR14.D
Sampled:	04/22/15 07:00	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 11:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.31	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	8.2	J
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-5

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-03	File ID:	23APR14.D
Sampled:	04/22/15 07:00	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 11:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.56	J
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3700	93.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.000	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6400	96.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	204838	6.74	195960	6.73	
Chlorobenzene-d5 (IS)	79950	9.73	81433	9.72	
1,4-Difluorobenzene (IS)	306476	7.52	303672	7.52	

6/9/15 Q

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-4

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-04	File ID:	23APR15.D
Sampled:	04/22/15 07:40	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 11:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-4

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-04	File ID:	23APR15.D
Sampled:	04/22/15 07:40	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 11:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-4

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-04	File ID:	23APR15.D
Sampled:	04/22/15 07:40	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 11:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1969	Sequence:	1506482	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.45	J
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8200	98.2	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.040	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7000	97.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	183157	6.74	195960	6.73	
Chlorobenzene-d5 (IS)	72489	9.73	81433	9.72	
1,4-Difluorobenzene (IS)	276601	7.52	303672	7.52	

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Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-3

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-05	File ID:	23APR06.D
Sampled:	04/22/15 08:15	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 08:31
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1969	Sequence:	1506482	Calibration:	1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-3

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-05	File ID:	23APR06.D
Sampled:	04/22/15 08:15	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 08:31
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.23	J
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.44	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.74	
108-88-3	Toluene	1	0.12	J
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.13	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-3

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-05	File ID:	23APR06.D
Sampled:	04/22/15 08:15	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 08:31
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U US
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.2700	92.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8700	98.7	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9100	99.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	199478	6.74	195960	6.73	
Chlorobenzene-d5 (IS)	78358	9.73	81433	9.72	
1,4-Difluorobenzene (IS)	304562	7.52	303672	7.52	

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Environmental Testing Laboratory Since 1949

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Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-2

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-06	File ID:	23APR16.D
Sampled:	04/22/15 09:00	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 12:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1969	Sequence:	1506482	Calibration:	1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.23	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichlorocthene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-2

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-06	File ID:	23APR16.D
Sampled:	04/22/15 09:00	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 12:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.070	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.16	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.28	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-20-2

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-06	File ID:	23APR16.D
Sampled:	04/22/15 09:00	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 12:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1969	Sequence:	1506482	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.160	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.280	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6700	96.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	203882	6.74	195960	6.73	
Chlorobenzene-d5 (IS)	78700	9.72	81433	9.72	
1,4-Difluorobenzene (IS)	301331	7.52	303672	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-5

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-07	File ID:	23APR17.D
Sampled:	04/22/15 10:00	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 12:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-5

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-07	File ID:	23APR17.D
Sampled:	04/22/15 10:00	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 12:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.10	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-5

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-07	File ID:	23APR17.D
Sampled:	04/22/15 10:00	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 12:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1969	Sequence: 1506482	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8600	98.6	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.100	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.120	101	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	206095	6.73	195960	6.73	
Chlorobenzene-d5 (IS)	78655	9.73	81433	9.72	
1,4-Difluorobenzene (IS)	306888	7.52	303672	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-4

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-08	File ID:	23APR18.D
Sampled:	04/22/15 10:40	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 13:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.30	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-4

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-08	File ID:	23APR18.D
Sampled:	04/22/15 10:40	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 13:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.88	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-4

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-08	File ID:	23APR18.D
Sampled:	04/22/15 10:40	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 13:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5900	95.9	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.010	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3800	93.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	199512	6.74	195960	6.73	
Chlorobenzene-d5 (IS)	80946	9.73	81433	9.72	
1,4-Difluorobenzene (IS)	302257	7.52	303672	7.52	

6/7/15 Q

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-3

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-09	File ID:	23APR19.D
Sampled:	04/22/15 11:40	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 13:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.34	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotolnene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.15	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-3

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-09	File ID:	23APR19.D
Sampled:	04/22/15 11:40	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 13:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1969	Sequence: 1506482	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.36	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.65	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-3

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-09	File ID:	23APR19.D
Sampled:	04/22/15 11:40	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 13:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5600	95.6	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9900	99.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8100	98.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	202184	6.74	195960	6.73	
Chlorobenzene-d5 (IS)	79476	9.72	81433	9.72	
1,4-Difluorobenzene (IS)	304449	7.52	303672	7.52	

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Tidewater Inc.
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Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-2

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-10	File ID:	23APR20.D
Sampled:	04/22/15 13:10	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 13:49
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1969	Sequence:	1506482	Calibration:	1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.35	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-2

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-10	File ID:	23APR20.D
Sampled:	04/22/15 13:10	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 13:49
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.24	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.95	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-2

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-10	File ID:	23APR20.D
Sampled:	04/22/15 13:10	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 13:49
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD1969	Sequence: 1506482	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7300	97.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.190	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7900	97.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	186048	6.73	195960	6.73	
Chlorobenzene-d5 (IS)	72039	9.73	81433	9.72	
1,4-Difluorobenzene (IS)	279392	7.52	303672	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-1

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-11	File ID:	23APR21.D
Sampled:	04/22/15 13:50	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 14:12
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/9/15 K

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-1

Laboratory:	BC Laboratories			SDG:	15-09718
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509718-11	File ID:	23APR21.D
Sampled:	04/22/15 13:50	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 14:12
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:02:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-17-1

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-11	File ID:	23APR21.D
Sampled:	04/22/15 13:50	Prepared:	04/23/15 06:38	Analyzed:	04/23/15 14:12
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD1969 Sequence: 1506482 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U UJ
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7600	97.6	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.010	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5500	95.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	200795	6.74	195960	6.73	
Chlorobenzene-d5 (IS)	78332	9.73	81433	9.72	
1,4-Difluorobenzene (IS)	297215	7.52	303672	7.52	

4/7/15

LDC #: 34351A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-3-15
SDG #: 15-09718 Level III/IV Page: 1 of 2
Laboratory: BC Laboratories, Inc. Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA Method 524.2)

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.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	≤20, r² / ≤30
IV.	Continuing calibration	SW	≤30
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB=1 ; EB=2
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	~~N~~ A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/L~~OQ/LODs~~	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	TB-3-4/22/15	15-09718-01	Water	04/22/15
2	EB-3-4/22/15	15-09718-02	Water	04/22/15
3	MW-20-5**	15-09718-03**	Water	04/22/15
4	MW-20-4	15-09718-04	Water	04/22/15
5	MW-20-3	15-09718-05	Water	04/22/15
6	MW-20-2	15-09718-06	Water	04/22/15
7	MW-17-5**	15-09718-07**	Water	04/22/15
8	MW-17-4	15-09718-08	Water	04/22/15
9	MW-17-3	15-09718-09	Water	04/22/15
10	MW-17-2**	15-09718-10**	Water	04/22/15
11	MW-17-1	15-09718-11	Water	04/22/15
12	MW-20-3MS	15-09718-05MS	Water	04/22/15
13	MW-20-3MSD	15-09718-05MSD	Water	04/22/15

LDC #: 34351A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-3-15
SDG #: 15-09718 Level III/IV Page: 2 of 2
Laboratory: BC Laboratories, Inc. Reviewer: 9R
2nd Reviewer: 1

METHOO: GC/MS Volatiles (EPA Method 524.2)

	Client ID	Lab ID	Matrix	Date
14				
15				
16				
17				
18				
19				

Notes:

	BYD1969-BLK1						

LDC #: 34351A1

VALIDATION FINDINGS CHECKLIST

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

Method: Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 34351A1

VALIDATION FINDINGS CHECKLIST

Reviewer:
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within +/-40% from the associated calibration standard?	✓			
Were retention times within - 30% of the last continuing calibration or +/- 50% of the initial calibration?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicetes.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

TARGET COMPOUND WORKSHEET

METHOD: VOA

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

LDC #: 34351A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS VOA (EPA Method 524.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	04/23/15	1506482-CCV1	B	52.8	all	J/UJ/P (ND)
	↓	1506482-CCV2	PPPP	47.6	↓	↓ ↓
	↓	↓	QQQQ	35.1	↓	↓ ↓

CONCAL.1S5

LDC #: 34351A1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

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

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (3rd std)	Recalculated RRF (3rd std)	Reported Average RRF (Initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	1504017	4/09/15	Benzene (1st Internal Standard)	2.00574	2.00574	1.915909	1.915909	7.242641	7.242639
			Toluene (2nd Internal Standard)	0.7845816	0.7845816	0.7564958	0.7564958	12.47006	12.47006
			Styrene (3rd Internal Standard)	3.285449	3.285449	2.953568	2.953568	12.55207	12.552006
2	1504017	04/10/15	Acetone (1st Internal Standard)	$4.143118e^{-2}$	$4.143118e^{-2}$	$4.043636e^{-2}$	$4.043636e^{-2}$	5.719946	5.719937
			2-Hexanone (2nd Internal Standard)	$6.539117e^{-2}$	$6.539117e^{-2}$	$6.147533e^{-2}$	$6.147533e^{-2}$	8.808441	8.808423
			t-1,4-Dichloro-2-Butene (3rd Internal Standard)	0.1519529	0.1519529	0.1397942	0.1397942	13.8276	13.8276
3			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						
4			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						

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

LDC #: 34351A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	15016482-CCV1	04/23/15	Benzene (1st Internal Standard)	1.915909	1.875135	1.875135	2.1	2.1
			Toluene (2nd Internal Standard)	0.7564958	0.7447147	0.7447147	1.6	1.6
			Styrene (3rd Internal Standard)	2.953568	2.914408	2.914408	1.3	1.3
2	15016482-CCV2	04/23/15	Acetone (1st Internal Standard)	$4.043636e^{-2}$	0.0398278	0.0398278	1.5	1.5
			2-Hexanone (2nd Internal Standard)	$6.147533e^{-2}$	$5.898665e^{-2}$	$5.898665e^{-2}$	4.0	4.0
			t-1,4-Dichloro-2-Butene (3rd Internal Standard)	0.1397942	0.1244842	0.1244842	11.0	11.0
3			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					
4			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					

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

LDC #: 34351A1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: 9R
2nd reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)

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: 3

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10.000	10.000	100	100	Ø
Bromofluorobenzene	↓	9.6400	96.4	96.4	Ø
1,2-Dichlorobenzene-d4	↓	9.3700	93.7	93.7	Ø
Dibromofluoromethane	NA				

Sample ID:

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

Sample ID:

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

Sample ID:

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

LDC #: 34351A1

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

MS/MSD sample: 12|13

Compound	Spike Added (µg/L)		Sample Concentration (µg/L)	Spiked Sample Concentration (µg/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	----	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene	25.000	25.000	ND	24.870	25.210	99.5	99.5	101	101	1.36	1.36
Trichloroethene			0.13000	26.070	25.990	104	104	103	103	0.307	0.307
Benzene			ND	24.010	24.140	96.0	96.0	96.6	96.5	0.540	0.540
Toluene			0.12000	24.500	25.200	97.5	97.5	100	100	2.82	2.82
Chlorobenzene			ND	25.980	25.790	104	104	103	103	0.734	0.734

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

LDC #: 34351A1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: BYD1949-BS1

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.000	NA	25.390	NA	102	102				
Trichloroethene	↓		25.190		101	101				
Benzene			24.280		97.1	97.1				
Toluene			24.310		97.2	97.2				
Chlorobenzene			25.870		103	103				

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

LDC #: 34351A1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer:
2nd reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

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

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

RRF = Relative response factor of the calibration standard.

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

Df = Dilution factor.

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

Example:

Sample I.D. 3, Styrene:

Conc. = $\frac{(73558)(10.00)(1)}{(79950)(2.953568)(1)(\quad)}$

= 0.31159777 ≃ 0.31 µg/L

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

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 5, 2015

Parameters: 1,4-Dioxane

Validation Level: Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09718

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-17-4	15-09718-08	Water	04/22/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

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

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

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

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
1,4-Dioxane - Data Qualification Summary - SDG 15-09718

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 15-09718

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 15-09718

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:04:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-17-4

Laboratory:	BC Laboratories		SDG:	15-09718	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509718-08	File ID:	27APR030.D
Sampled:	04/22/15 10:40	Prepared:	04/24/15 19:20	Analyzed:	04/27/15 22:44
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.98 ml
Batch:	BYD2332	Sequence: 1506718	Calibration:	1505015	Instrument: MS-B4

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
123-91-1	1,4-Dioxane	0.98	0.21	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Naphthalene-d8 (Surrogate)	40.000	34.790	87.0	75 - 132	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
1,4-Dioxane-d8 (IS)	3965604	3.48	2753232	3.5	

* Values outside of QC limits

6/9/15

LDC #: 34351A2c

SDG #: 15-09718

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-3-15

Page: 1 of 1

Reviewer:

2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW846 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.	Sample receipt/Technical holding times	A, A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	r^2 / ≤20
IV.	Continuing calibration	A	≤20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	C.S.
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	MW-17-4	15-09718-08	Water	04/22/15
2				
3				
4				
5				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 2, 2015

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09718

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-3-4/22/15	15-09718-02	Water	04/22/15
MW-20-5**	15-09718-03**	Water	04/22/15
MW-20-4	15-09718-04	Water	04/22/15
MW-20-3	15-09718-05	Water	04/22/15
MW-20-2	15-09718-06	Water	04/22/15
MW-17-5**	15-09718-07**	Water	04/22/15
MW-17-4	15-09718-08	Water	04/22/15
MW-17-3	15-09718-09	Water	04/22/15
MW-17-2**	15-09718-10**	Water	04/22/15
MW-17-1	15-09718-11	Water	04/22/15
EB-3-4/22/15MS	15-09718-02MS	Water	04/22/15
EB-3-4/22/15MSD	15-09718-02MSD	Water	04/22/15
EB-3-4/22/15DUP	15-09718-02DUP	Water	04/22/15
MW-20-3MS	15-09718-05MS	Water	04/22/15
MW-20-3MSD	15-09718-05MSD	Water	04/22/15
MW-20-3DUP	15-09718-05DUP	Water	04/22/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium by Environmental Protection Agency (EPA) Methods 200.7 and 200.8

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of ICS analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron	40.863 ug/L	All samples in SDG 15-09718
ICB/CCB	Iron	30.713 ug/L	EB-3-4/22/15
ICB/CCB	Iron	49.488 ug/L	MW-20-5** MW-20-4 MW-20-3 MW-20-2 MW-17-5** MW-17-4 MW-17-3 MW-17-2** MW-17-1
ICB/CCB	Sodium	0.038595 mg/L	EB-3-4/22/15 MW-20-5** MW-20-4 MW-20-2 MW-17-5** MW-17-4 MW-17-3 MW-17-2** MW-17-1

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Magnesium Potassium Sodium	0.021171 mg/L 0.16727 mg/L 0.13195 mg/L	MW-20-3

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-3-4/22/15	Iron Sodium	66 ug/L 0.15 mg/L	66U ug/L 0.15U mg/L
MW-20-5**	Iron	120 ug/L	120U ug/L
MW-20-4	Iron	110 ug/L	110U ug/L
MW-20-3	Iron	62 ug/L	62U ug/L
MW-20-2	Iron	80 ug/L	80U ug/L
MW-17-4	Iron	180 ug/L	180U ug/L
MW-17-3	Iron	180 ug/L	180U ug/L
MW-17-1	Iron	190 ug/L	190U ug/L

VI. Field Blanks

Sample EB-3-4/22/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-3-4/22/15	Iron Calcium Sodium	66 ug/L 0.019 mg/L 0.15 mg/L

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

IX. ICP Serial Dilution

ICP serial dilution analysis was performed on an associated project sample. The analysis criteria were met.

X. Laboratory Control Samples (LCS)

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

No field duplicates were identified in this SDG.

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

XIII. Sample Result Verification

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

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to laboratory blank contamination, data were qualified as not detected in eight samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Metals - Data Qualification Summary - SDG 15-09718

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
Metals - Laboratory Blank Data Qualification Summary - SDG 15-09718

Sample	Analyte	Modified Final Concentration	A or P
EB-3-4/22/15	Iron Sodium	66U ug/L 0.15U mg/L	A
MW-20-5**	Iron	120U ug/L	A
MW-20-4	Iron	110U ug/L	A
MW-20-3	Iron	62U ug/L	A
MW-20-2	Iron	80U ug/L	A
MW-17-4	Iron	180U ug/L	A
MW-17-3	Iron	180U ug/L	A
MW-17-1	Iron	190U ug/L	A

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-02RE1
File ID: PE2_150504-027
Sampled: 04/22/15 06:30
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 13:43
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	66	1	U	EPA-200.7

6/9/15 8

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03RE1
File ID: PE2_150504-035
Sampled: 04/22/15 07:00
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:03
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	120	1	U	EPA-200.7

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04RE1
File ID: PE2_150504-036
Sampled: 04/22/15 07:40
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-QP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	110	1	U	EPA-200.7

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Powell, OH 43065

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05RE1
File ID: PE2_150504-037
Sampled: 04/22/15 08:15
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:08
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	62	1	U	EPA-200.7

6/9/15

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Powell, OH 43065

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06RE1
File ID: PE2_150504-038
Sampled: 04/22/15 09:00
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:11
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	80	1	U	EPA-200.7

6/9/15

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3761 Attucks Drive
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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07RE1
File ID: PE2_150504-039
Sampled: 04/22/15 10:00
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:13
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1800	1		EPA-200.7

6/9/15

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Powell, OH 43065

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08RE1
File ID: PE2_150504-040
Sampled: 04/22/15 10:40
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:16
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	180	1	U	EPA-200.7

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09RE1
File ID: PE2_150504-041
Sampled: 04/22/15 11:40
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	180	1	U	EPA-200.7

6/9/15

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10RE1
File ID: PE2_150504-042
Sampled: 04/22/15 13:10
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	310	1		EPA-200.7

6/9/15

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11RE1
File ID: PE2_150504-043
Sampled: 04/22/15 13:50
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:24
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	190	1	U	EPA-200.7

6/9/15

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-02RE1
File ID: PE2_150504-027
Sampled: 04/22/15 06:30
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 13:43
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.019	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.15	1	J U	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

6/9/15

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03RE1
File ID: PE2_150504-035
Sampled: 04/22/15 07:00
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:03
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	6.5	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	2.0	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	53	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.5	1		EPA-200.7

6/9/15

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Project: JPL- GW Monitoring Wells
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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04RE1
File ID: PE2_150504-036
Sampled: 04/22/15 07:40
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	9.7	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	3.4	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	62	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	0.86	1	J	EPA-200.7

6/9/15

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05RE2
File ID: PE2_150508-141
Sampled: 04/22/15 08:15
Prepared: 05/08/15 09:00
Analyzed: 05/08/15 17:14
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0741
Sequence: 1507522
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	8.5	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	7.5	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	51	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.9	1		EPA-200.7

6/9/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06RE1
File ID: PE2_150504-038
Sampled: 04/22/15 09:00
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:11
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	49	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	22	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	17	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.6	1		EPA-200.7

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07RE1
File ID: PE2_150504-039
Sampled: 04/22/15 10:00
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:13
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	12	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	3.7	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	56	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.3	1		EPA-200.7

6/9/15

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08RE1
File ID: PE2_150504-040
Sampled: 04/22/15 10:40
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:16
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	22	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	6.5	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	56	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.0	1		EPA-200.7

6/9/15

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Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09RE1
File ID: PE2_150504-041
Sampled: 04/22/15 11:40
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	82	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	40	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	31	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

6/9/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10RE1
File ID: PE2_150504-042
Sampled: 04/22/15 13:10
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	82	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	31	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	23	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.4	1		EPA-200.7

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11RE1
File ID: PE2_150504-043
Sampled: 04/22/15 13:50
Prepared: 04/30/15 12:30
Analyzed: 05/04/15 14:24
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2658
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-QP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	56	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	20	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	20	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-02
File ID: PE_EL2_150428-103
Sampled: 04/22/15 06:30
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 16:04
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

5/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03
File ID: PE_EL2_150428-104
Sampled: 04/22/15 07:00
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 16:07
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04
File ID: PE_EL2_150428-105
Sampled: 04/22/15 07:40
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 16:10
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.5	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/9/15

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05
File ID: PE_EL2_150428-095
Sampled: 04/22/15 08:15
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 15:36
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.72	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/9/15

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06
File ID: PE_EL2_150428-106
Sampled: 04/22/15 09:00
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 16:14
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/9/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07
File ID: PE_EL2_150428-107
Sampled: 04/22/15 10:00
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 16:17
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	9.0	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	0.67	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.93	1	J	EPA-200.8

6/5/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08
File ID: PE_EL2_150428-108
Sampled: 04/22/15 10:40
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 16:20
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	3.2	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	0.74	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.12	1	J	EPA-200.8

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09
File ID: PE_EL2_150428-109
Sampled: 04/22/15 11:40
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 16:23
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/9/15

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Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10
File ID: PE_EL2_150428-110
Sampled: 04/22/15 13:10
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 16:26
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/9/15 Q

BC Laboratories, Inc.
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Reported: 5/22/2015 10:58:48AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11
File ID: PE_EL2_150428-111
Sampled: 04/22/15 13:50
Prepared: 04/28/15 09:00
Analyzed: 04/28/15 16:30
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2418
Sequence: 1506773
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/9/15

LDC #: 34351A4a

SDG #: 15-09718

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 5-29-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: Q

METHOD: Metals (EPA Method 200.7/200.8)

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.	Sample receipt/Technical holding times	A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	SW	EB=1
VII.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VIII.	Duplicate sample analysis	A	DUP #13 Ca OK by difference
IX.	ICP Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	not reviewed for level III
XIII.	Sample Result Verification	A	Not reviewed for Level III validation.
XIV.	Overall Assessment of Data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	EB-3-4/22/15	15-09718-02	Water	04/22/15
2	MW-20-5**	15-09718-03**	Water	04/22/15
3	MW-20-4	15-09718-04	Water	04/22/15
4	MW-20-3	15-09718-05	Water	04/22/15
5	MW-20-2	15-09718-06	Water	04/22/15
6	MW-17-5**	15-09718-07**	Water	04/22/15
7	MW-17-4	15-09718-08	Water	04/22/15
8	MW-17-3	15-09718-09	Water	04/22/15
9	MW-17-2**	15-09718-10**	Water	04/22/15
10	MW-17-1	15-09718-11	Water	04/22/15
11	EB-3-4/22/15MS	15-09718-02MS	Water	04/22/15
12	EB-3-4/22/15MSD	15-09718-02MSD	Water	04/22/15
13	EB-3-4/22/15DUP	15-09718-02DUP	Water	04/22/15
14	MW-20-3MS	15-09718-05MS	Water	04/22/15
15	MW-20-3MSD	15-09718-05MSD	Water	04/22/15

LDC #: 34351A4a

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 5-29-15

SDG #: 15-09718

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: Q

METHOD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16	MW-20-3DUP	15-09718-05DUP	Water	04/22/15
17				
18				
19				
20				
21				
22				
23				
24				
25				
26	PBW1			
27	PBW2			

Notes:

LDC #: 34351A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

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

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of Isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 34351A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XII. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XIII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 34351A4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

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

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1→10	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
QC 11→13	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
↓ 14→16	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
Analysis Method		
ICP	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
ICP-MS	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-

Comments: Mercury by CVAA if performed

LDC #: 34351A4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA

Reviewer: MG
2nd Reviewer: [illegible]

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: all

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	1	2	3	4	5	7	8	10		
Fe		40.863		204.3	66	120	110	62	80	180	180	190		

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	1									
Fe			30.713	153.6	see PB									

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 2-10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	2	3	4	5	7	8	10			
Fe			49.488	247.4	see PB	see PB	see PB	see PB	see PB	see PB	see PB			

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1-3,5-10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	1									
Na			0.038595	0.1930	0.15									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 4 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Mg			0.021171	0.1059										
K			0.16727	0.8364										
Na			0.13195	0.6598										

LDC #: 34351A4a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: x

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

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

Sample: 1 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Fe	66 (µg/L)
Ca	0.019 (mg/L)
Na	0.15 (↓)

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Analyte	Concentration Units ( )

LDC #: 34351A4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: MG
2nd Reviewer: 4

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

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found / True x 100 Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
1149 ICV	ICP (Initial calibration)	Na	49840	50000	99.7	99.7	Y
1030 ICV	ICP/MS (Initial calibration)	Pb	125.754	125.00	101	101	↓
	CVAA (Initial calibration)						↓
1358 CCV2	ICP (Continuing calibration)	K	48910	50000	97.8	97.8	↓
1555 CCV9	ICP/MS (Continuing calibration)	As	103.684	100.00	104	104	↓
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

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

LDC #: 34351A4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

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

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

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result). True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration, D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L), SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
1208 ICSAB	ICP interference check	Mg	456.2 (mg/L)	500.0 (mg/L)	91.2	91.2	Y
1530 LCS	Laboratory control sample	As	100.3 (µg/L)	100.0 (µg/L)	100	100	↓
1546 14	Matrix spike	Cr	(SSR-SR) 39.57 (µg/L)	40.0 (µg/L)	98.9	98.9	↓
1343/1345 13	Duplicate	Na	0.1518 (mg/L)	0.1406 (mg/L)	7.66	7.62	↓
1536/1543 4	ICP serial dilution	As	0.715 (µg/L)	3.5 U (µg/L)	100	—	↓

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

TOTCLC.4SW

LDC #: 34351A4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: MG
2nd reviewer: [illegible]

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

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for #2, Fe were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

$$\frac{(0.1163\ mg/L)(0.050\ L)(1000\ \mu g/mg)}{0.050\ L} = 116.3\ \mu g/L$$

#	Sample ID	Analyte	Reported Concentration (µg/L)	Calculated Concentration (µg/L)	Acceptable (Y/N)
1	2	Fe	120	120	Y
2	6	Pb	0.93	0.93	↓
3	9	Ca	82 (mg/L)	82 (mg/L)	↓

Note:

RECALC.4SW

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 8, 2015

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09718

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-3-4/22/15	15-09718-02	Water	04/22/15
MW-20-5**	15-09718-03**	Water	04/22/15
MW-20-4	15-09718-04	Water	04/22/15
MW-20-3	15-09718-05	Water	04/22/15
MW-20-2	15-09718-06	Water	04/22/15
MW-17-5**	15-09718-07**	Water	04/22/15
MW-17-4	15-09718-08	Water	04/22/15
MW-17-3	15-09718-09	Water	04/22/15
MW-17-2**	15-09718-10**	Water	04/22/15
MW-17-1	15-09718-11	Water	04/22/15
MW-20-3MS	15-09718-05MS	Water	04/22/15
MW-20-3MSD	15-09718-05MSD	Water	04/22/15
MW-20-3DUP	15-09718-05DUP	Water	04/22/15
MW-17-4DUP	15-09718-08DUP	Water	04/22/15
MW-20-4DUP	15-09718-04DUP	Water	04/22/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Hexavalent Chromium by EPA SW 846 Method 7196
Nitrite as Nitrogen by EPA Method 353.2
Perchlorate by EPA Method 314.0
pH by EPA Method 150.1
Total Dissolved Solids by EPA Method 160.1

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB-3-4/22/15	pH	160.83 hours	48 hours	J (all detects)	P
MW-20-5**	pH	160.42 hours	48 hours	J (all detects)	P
MW-20-4	pH	168.93 hours	48 hours	J (all detects)	P
MW-20-3	pH	168.63 hours	48 hours	J (all detects)	P
MW-20-2	pH	168.00 hours	48 hours	J (all detects)	P
MW-17-5**	pH	171.18 hours	48 hours	J (all detects)	P
MW-17-4	pH	117.90 hours	48 hours	J (all detects)	P
MW-17-3	pH	118.70 hours	48 hours	J (all detects)	P
MW-17-2**	pH	117.32 hours	48 hours	J (all detects)	P
MW-17-1	pH	116.78 hours	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method(s). No contaminants were found in the laboratory blanks.

V. Field Blanks

Sample EB-3-4/22/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-3-4/22/15	pH Total dissolved solids Chloride Nitrate as N Sulfate	5.67 pH units 8.7 mg/L 0.17 mg/L 0.020 mg/L 0.28 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

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

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to technical holding time, data were qualified as estimated in ten samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Wet Chemistry - Data Qualification Summary - SDG 15-09718

Sample	Analyte	Flag	A or P	Reason
EB-3-4/22/15 MW-20-5** MW-20-4 MW-20-3 MW-20-2 MW-17-5** MW-17-4 MW-17-3 MW-17-2** MW-17-1	pH	J (all detects)	P	Technical holding time

NASA JPL, 2Q2015
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 15-09718

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-02
File ID: Tiamo042815-152
Sampled: 04/22/15 06:30
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 23:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2442
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.67	1	J	EPA-150.1

6/9/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03
File ID: Tiamo042815-153
Sampled: 04/22/15 07:00
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 23:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2442
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.70	1	J	EPA-150.1

5/9/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04
File ID: Tiamo042915-014
Sampled: 04/22/15 07:40
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 08:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.78	1	J	EPA-150.1

6/9/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05
File ID: Tiamo042915-017
Sampled: 04/22/15 08:15
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 08:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.02	1	J	EPA-150.1

6/9/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06
File ID: Tiamo042915-018
Sampled: 04/22/15 09:00
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.09	1	J	EPA-150.1

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07
File ID: Tiamo042915-028
Sampled: 04/22/15 10:00
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 13:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2502
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.20	1	4	EPA-150.1

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08
File ID: Tiamo042715-008
Sampled: 04/22/15 10:40
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 08:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2260
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.25	1	J	EPA-150.1

6/9/15

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09
File ID: Tiamo042715-022
Sampled: 04/22/15 11:40
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 10:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2260
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.82	1	J	EPA-150.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10
File ID: Tiamo042715-023
Sampled: 04/22/15 13:10
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 10:29
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2260
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.85	1	J	EPA-150.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11
File ID: Tiamo042715-024
Sampled: 04/22/15 13:50
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 10:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2260
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
----	pH	7.80	1	J	EPA-150.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-02
File ID:
Sampled: 04/22/15 06:30
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	8.7	0.667	D	EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03
File ID:
Sampled: 04/22/15 07:00
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	180	1		EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04
File ID:
Sampled: 04/22/15 07:40
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	220	2	D	EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05
File ID:
Sampled: 04/22/15 08:15
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	210	2	D	EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06
File ID:
Sampled: 04/22/15 09:00
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	310	2	D	EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07
File ID:
Sampled: 04/22/15 10:00
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	210	2	D	EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08
File ID:
Sampled: 04/22/15 10:40
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	240	2	D	EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09
File ID:
Sampled: 04/22/15 11:40
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	500	3.33	D	EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10
File ID:
Sampled: 04/22/15 13:10
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	380	2	D	EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11
File ID:
Sampled: 04/22/15 13:50
Prepared: 04/27/15 12:30
Analyzed: 04/27/15 12:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2295
Sequence: 1507039
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	280	2	D	EPA-160.1

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-02
File ID: E042315.seq-26
Sampled: 04/22/15 06:30
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 15:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.17	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.020	1	J	EPA-300.0
14808-79-8	Sulfate	0.28	1	J	EPA-300.0

6/9/15

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03
File ID: E042315.seq-27
Sampled: 04/22/15 07:00
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 15:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	8.1	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	J	EPA-300.0
14808-79-8	Sulfate	4.3	1		EPA-300.0

6/9/15

Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04
File ID: E042315.seq-28
Sampled: 04/22/15 07:40
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 15:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	10	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	12	1		EPA-300.0

6/7/15

Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05
File ID: E042315.seq-20
Sampled: 04/22/15 08:15
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 13:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	46	1		EPA-300.0
14797-55-8	Nitrate as N	0.077	1	J	EPA-300.0
14808-79-8	Sulfate	3.2	1		EPA-300.0

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Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06
File ID: E042315.seq-29
Sampled: 04/22/15 09:00
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 16:08
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	22	1		EPA-300.0
14797-55-8	Nitrate as N	2.6	1		EPA-300.0
14808-79-8	Sulfate	36	1		EPA-300.0

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Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07
File ID: E042315.seq-30
Sampled: 04/22/15 10:00
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 16:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.4	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	20	1		EPA-300.0

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08
File ID: E042315.seq-31
Sampled: 04/22/15 10:40
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 16:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	13	1		EPA-300.0
14797-55-8	Nitrate as N	0.43	1		EPA-300.0
14808-79-8	Sulfate	23	1		EPA-300.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09
File ID: E042315.seq-32
Sampled: 04/22/15 11:40
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 17:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	79	1		EPA-300.0
14797-55-8	Nitrate as N	11	1		EPA-300.0
14808-79-8	Sulfate	99	1		EPA-300.0

6/2/15

Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10
File ID: E042315.seq-35
Sampled: 04/22/15 13:10
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 17:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	46	1		EPA-300.0
14797-55-8	Nitrate as N	3.4	1		EPA-300.0
14808-79-8	Sulfate	60	1		EPA-300.0

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Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11
File ID: E042315.seq-36
Sampled: 04/22/15 13:50
Prepared: 04/23/15 12:00
Analyzed: 04/23/15 18:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2132
Sequence: 1507131
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	16	1		EPA-300.0
14797-55-8	Nitrate as N	0.66	1		EPA-300.0
14808-79-8	Sulfate	29	1		EPA-300.0

6/2/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-02
File ID: F050115.seq-12.0000.txt
Sampled: 04/22/15 06:30
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 04:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03
File ID: F050115.seq-13.0000.txt
Sampled: 04/22/15 07:00
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 04:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

5/9/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04
File ID: F050115.seq-16.0000.txt
Sampled: 04/22/15 07:40
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 05:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05
File ID: F050115.seq-8.0000.txt
Sampled: 04/22/15 08:15
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 03:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06
File ID: F050115.seq-17.0000.txt
Sampled: 04/22/15 09:00
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 05:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07
File ID: F050115.seq-18.0000.txt
Sampled: 04/22/15 10:00
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 05:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08
File ID: F050115.seq-19.0000.txt
Sampled: 04/22/15 10:40
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 06:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.4	1	J	EPA-314.0

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09
File ID: F050115.seq-33.0000.txt
Sampled: 04/22/15 11:40
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 10:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	5.8	1		EPA-314.0

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10
File ID: F050115.seq-21.0000.txt
Sampled: 04/22/15 13:10
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 06:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15 T

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11
File ID: F050115.seq-22.0000.txt
Sampled: 04/22/15 13:50
Prepared: 04/30/15 16:00
Analyzed: 05/01/15 06:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0041
Sequence: 1507134
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-02
File ID: 150423 0908 NO2-058
Sampled: 04/22/15 06:30
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03
File ID: 150423 0908 NO2-059
Sampled: 04/22/15 07:00
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04
File ID: 150423 0908 NO2-060
Sampled: 04/22/15 07:40
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15 Q

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05
File ID: 150423 0908 NO2-045
Sampled: 04/22/15 08:15
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06
File ID: 150423 0908 NO2-061
Sampled: 04/22/15 09:00
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07
File ID: 150423 0908 NO2-062
Sampled: 04/22/15 10:00
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08
File ID: 150423 0908 NO2-063
Sampled: 04/22/15 10:40
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.042	1	J	EPA-353.2

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09
File ID: 150423 0908 NO2-064
Sampled: 04/22/15 11:40
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10
File ID: 150423 0908 NO2-067
Sampled: 04/22/15 13:10
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11
File ID: 150423 0908 NO2-031
Sampled: 04/22/15 13:50
Prepared: 04/23/15 09:08
Analyzed: 04/23/15 09:08
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2184
Sequence: 1506639
Calibration: UNASSIGNED
Instrument: KONE-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: I509718-02
File ID: I50423 0041 CR6-028
Sampled: 04/22/15 06:30
Prepared: 04/23/15 00:4I
Analyzed: 04/23/15 01:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: I506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03
File ID: 150423 0041 CR6-029
Sampled: 04/22/15 07:00
Prepared: 04/23/15 00:41
Analyzed: 04/23/15 01:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: 1506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

6/9/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04
File ID: 150423 0041 CR6-030
Sampled: 04/22/15 07:40
Prepared: 04/23/15 00:41
Analyzed: 04/23/15 01:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: 1506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

6/7/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05
File ID: 150423 0041 CR6-024
Sampled: 04/22/15 08:15
Prepared: 04/23/15 00:41
Analyzed: 04/23/15 01:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: 1506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06
File ID: 150423 0041 CR6-031
Sampled: 04/22/15 09:00
Prepared: 04/23/15 00:41
Analyzed: 04/23/15 01:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: 1506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07
File ID: 150423 0041 CR6-032
Sampled: 04/22/15 10:00
Prepared: 04/23/15 00:41
Analyzed: 04/23/15 01:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: 1506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

6/9/15

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Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08
File ID: 150423 0041 CR6-033
Sampled: 04/22/15 10:40
Prepared: 04/23/15 00:41
Analyzed: 04/23/15 01:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: 1506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09
File ID: 150423 0041 CR6-036
Sampled: 04/22/15 11:40
Prepared: 04/23/15 00:41
Analyzed: 04/23/15 01:39
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: 1506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

6/9/15

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10
File ID: 150423 0041 CR6-037
Sampled: 04/22/15 13:10
Prepared: 04/23/15 00:41
Analyzed: 04/23/15 01:39
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: 1506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

5/7/15

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11
File ID: 150423 0041 CR6-038
Sampled: 04/22/15 13:50
Prepared: 04/23/15 00:41
Analyzed: 04/23/15 01:39
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2178
Sequence: 1506636
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

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Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

EB-3-4/22/15

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-02
File ID: Tiamo042815-152
Sampled: 04/22/15 06:30
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 23:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2442
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.0	1	U	SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.1	1	U	SM-2320B

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Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-20-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-03
File ID: Tiamo042815-153
Sampled: 04/22/15 07:00
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 23:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2442
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	140	1		SM-2320B
3812-32-6	Carbonate	7.1	1		SM-2320B
---	Total Alkalinity as CaCO3	120	1		SM-2320B

5/7/15

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Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-20-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-04
File ID: Tiamo042915-014
Sampled: 04/22/15 07:40
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 08:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	140	1		SM-2320B
3812-32-6	Carbonate	11	1		SM-2320B
---	Total Alkalinity as CaCO3	130	1		SM-2320B

5/19/15

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-20-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-05
File ID: Tiamo042915-017
Sampled: 04/22/15 08:15
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 08:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	75	1		SM-2320B
3812-32-6	Carbonate	11	1		SM-2320B
---	Total Alkalinity as CaCO3	81	1		SM-2320B

5/9/15

Tidewater Inc.
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-20-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-06
File ID: Tiamo042915-018
Sampled: 04/22/15 09:00
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	190	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	160	1		SM-2320B

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-17-5

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-07
File ID: Tiamo042915-028
Sampled: 04/22/15 10:00
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 13:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2502
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	140	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	120	1		SM-2320B

5/7/15

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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-17-4

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-08
File ID: Tiamo042715-008
Sampled: 04/22/15 10:40
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 08:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2260
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	160	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	130	1		SM-2320B

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-17-3

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-09
File ID: Tiamo042715-022
Sampled: 04/22/15 11:40
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 10:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2260
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	230	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	190	1		SM-2320B

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-17-2

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-10
File ID: Tiamo042715-023
Sampled: 04/22/15 13:10
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 10:29
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2260
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	270	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	230	1		SM-2320B

5/7/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:05:09PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-17-1

Laboratory: BC Laboratories
SDG: 15-09718
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509718-11
File ID: Tiamo042715-024
Sampled: 04/22/15 13:50
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 10:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2260
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	240	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	190	1		SM-2320B

6/9/15 Q

LDC #: 34351A6

SDG #: 15-09718

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-1-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: ✓

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0) pH (EPA Method 150.1), TDS (EPA Method 160.1)

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.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	SW	EB=1
VI.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VII.	Duplicate sample analysis	A	DUP (SDG: 15-10030)
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Sample result verification	A	Not reviewed for Level III validation.
XI	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	EB-3-4/22/15	15-09718-02	Water	04/22/15
2	MW-20-5**	15-09718-03**	Water	04/22/15
3	MW-20-4	15-09718-04	Water	04/22/15
4	MW-20-3	15-09718-05	Water	04/22/15
5	MW-20-2	15-09718-06	Water	04/22/15
6	MW-17-5**	15-09718-07**	Water	04/22/15
7	MW-17-4	15-09718-08	Water	04/22/15
8	MW-17-3	15-09718-09	Water	04/22/15
9	MW-17-2**	15-09718-10**	Water	04/22/15
10	MW-17-1	15-09718-11	Water	04/22/15
11	MW-20-3MS	15-09718-05MS	Water	04/22/15
12	MW-20-3MSD	15-09718-05MSD	Water	04/22/15
13	MW-20-3DUP	15-09718-05DUP	Water	04/22/15
14	MW-17-4DUP	15-09718-08DUP	Water	04/22/15
15	#3 DUP			
16				

LDC #: 34351A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-1-15

SDG #: 15-09718 Level III/IV Page: 2 of 2

Laboratory: BC Laboratories, Inc. Reviewer: MG

2nd Reviewer: ✓

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0) pH (EPA Method 150.1), TDS (EPA Method 160.1)

	Client ID	Lab ID	Matrix	Date
17				
18				
19				
20				
21				
22	PBW1			
23	PBW2			
24	PBW3			
25	PBW4			

Notes:

LDC #: 34351A6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: ✓

Method: Inorganics (EPA Method See cover)

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

LDC #: 34351A6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 34351A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer: ✓

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1 → 10	W	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
QC 11, 12	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
13	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
↓ 14, 15	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 34351A6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

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

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:		150.1					
Parameters:		pH					
Technical holding time:		48 hr					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
1	06:30 4-22-15	23:20 4-28-15	(160.83 hr)				J/UJ/P (all dets)
2	07:00 4-22-15	23:25 4-28-15	(160.42)				
3	07:40 4-22-15	08:36 4-29-15	(168.93)				
4	08:15 4-22-15	08:53 4-29-15	(168.63)				
5	09:00 4-22-15	09:00 4-29-15	(168.00)				
6	10:00 4-22-15	13:11 4-29-15	(171.18)				
7	10:40 4-22-15	08:34 4-27-15	(117.90)				
8	11:40 4-22-15	10:22 4-27-15	(118.70)				
9	13:10 4-22-15	10:29 4-27-15	(117.32)				
10	13:50 4-22-15	10:37 4-27-15	(116.78)				
14	10:40 4-22-15	08:44 4-27-15	(118.07)				
15	07:40 4-22-15	08:43 4-29-15	(169.05)				

LDC #: 34351A6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: X

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

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

Sample: 1 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
pH	5.67 (pH units)
TDS	8.7 (mg/L)
Cl	0.17 (↓)
NO3-N	0.020 (↓)
SO4	0.28 (↓)

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Analyte	Concentration Units ( )

LDC #: 34351A6

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: MG
2nd Reviewer: 4

METHOD: Inorganics, Method see cover

The correlation coefficient (r) for the calibration of Cr VI was recalculated. Calibration date: 3-10-15

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

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

Type of Analysis	Analyte	Standard ID	Conc. Found (units)	Abs. True (units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration	Cr VI	Blank	0.000 (mg/L)	0.001	r^2=0.999819	r^2=0.999862	Y
		Standard 1	0.002 ( )	0.003			
		Standard 2	0.005 ( )	0.005			
		Standard 3	0.025 ( )	0.020			
		Standard 4	0.050 ( )	0.040			
		Standard 5	0.100 (↓)	0.077			
		Standard 6	–	–			
		Standard 7	–	–			
Calibration verification	SO_4	1349 CCV1	105.0 (mg/L)	100.0 (mg/L)	105	105	
Calibration verification	ClO_4	0454 CCV1	10.57 (µg/L)	10.0 (µg/L)	106	106	
Calibration verification	NO_2-N	0919 CCV3	0.477 (mg/L)	0.50 (mg/L)	95.4	95.4	

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

LDC #: 34351A6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

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

METHOD: Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
0915 LCS	Laboratory control sample	NO_2-N	0.496 (mg/L)	0.500 (mg/L)	99.2	99.2	Y
0359 11	Matrix spike sample	ClO_4	(SSR-SR) 10.47 (µg/L)	10.101 (µg/L)	104	104	↓
13	Duplicate sample	TDS	212.0 (mg/L)	212.0 (mg/L)	0.00	0.00	↓

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

TOTCLC.6

LDC #: 34351A6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: Inorganics, Method See cover

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for #2, NO_3-N reported with a positive detect were recalculated and verified using the following equation:

Concentration = Quadratic; 1x dil Recalculation:

$$NO_3\text{-}N = \frac{\sqrt{4 \times 0.0064 \times (0.003 + 0.0035) + (0.3589)^2} - 0.3589}{2 \times (0.0064)} = 0.0181 \text{ mg/L}$$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	2	pH	8.70 (pH units)	8.70 (pH units)	Y
		NO3-N	0.018	0.018	
2	6	TDS	210	210	
		SO4	20	20	
3	9	Cl	46	46	
		Total Alk	230	230	

Note: methods 314.0, 353.2 and 7196 are N.D. for level IV samples.

RECALC.6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 5, 2015

Parameters: Volatiles

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09842

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-4-4/23/15	15-09842-01	Water	04/23/15
EB-4-4/23/15	15-09842-02	Water	04/23/15
MW-22-5	15-09842-03	Water	04/23/15
MW-22-4	15-09842-04	Water	04/23/15
DUP-3-2Q15	15-09842-05	Water	04/23/15
MW-22-3	15-09842-06	Water	04/23/15
MW-22-2	15-09842-07	Water	04/23/15
MW-22-1	15-09842-08	Water	04/23/15
MW-25-5	15-09842-09	Water	04/23/15
MW-25-4	15-09842-10	Water	04/23/15
MW-25-3	15-09842-11	Water	04/23/15
MW-25-2	15-09842-12	Water	04/23/15
MW-25-1	15-09842-13	Water	04/23/15
DUP-4-2Q15	15-09842-14	Water	04/23/15
MW-26-2	15-09842-15	Water	04/23/15
MW-26-1	15-09842-16	Water	04/23/15
MW-22-2MS	15-09842-07MS	Water	04/23/15
MW-22-2MSD	15-09842-07MSD	Water	04/23/15
MW-25-2MS	15-09842-12MS	Water	04/23/15
MW-25-2MSD	15-09842-12MSD	Water	04/23/15
MW-26-2MS	15-09842-15MS	Water	04/23/15
MW-26-2MSD	15-09842-15MSD	Water	04/23/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

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 30.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/27/15 (1506624)	1,2,4-Trimethylbenzene	30.6	MW-26-2 MW-26-1	UJ (all non-detects)	P

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-4-4/23/15 was identified as a trip blank. No contaminants were found.

Sample EB-4-4/23/15 was identified as an equipment blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples MW-22-4 and DUP-3-2Q15 and samples MW-25-3 and DUP-4-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-25-3	DUP-4-2Q15	
Chloroform	0.55	0.62	12
Tetrachloroethene	0.40	0.42	5

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D, data were qualified as estimated in two samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (UJ) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Volatiles - Data Qualification Summary - SDG 15-09842

Sample	Compound	Flag	A or P	Reason
MW-26-2 MW-26-1	1,2,4-Trimethylbenzene	UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL, 2Q2015
Volatiles - Laboratory Blank Data Qualification Summary - SDG 15-09842

No Sample Data Qualified in this SDG

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-4-4/23/15

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509842-01	File ID:	24APR15.D
Sampled:	04/23/15 06:00	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 12:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/4/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-4-4/23/15

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-01	File ID:	24APR15.D
Sampled:	04/23/15 06:00	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 12:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/9/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-4-4/23/15

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1509842-01		File ID:	24APR15.D
Sampled:	04/23/15 06:00	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 12:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3200	93.2	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.070	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5700	95.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	214072	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	85138	9.73	87829	9.72	
1,4-Difluorobenzene (IS)	326465	7.52	318940	7.52	

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-4-4/23/15

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1509842-02		File ID:	24APR16.D
Sampled:	04/23/15 06:15	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 12:35
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2113	Sequence: 1506560	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-4-4/23/15

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-02	File ID:	24APR16.D
Sampled:	04/23/15 06:15	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 12:35
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-4-4/23/15

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1509842-02		File ID:	24APR16.D
Sampled:	04/23/15 06:15	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 12:35
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2113	Sequence: 1506560	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.4900	94.9	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.100	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7100	97.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	213758	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	84775	9.73	87829	9.72	
1,4-Difluorobenzene (IS)	322522	7.52	318940	7.52	

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-5

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-03	File ID:	24APR17.D
Sampled:	04/23/15 06:45	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 12:58
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-5

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-03	File ID:	24APR17.D
Sampled:	04/23/15 06:45	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 12:58
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-5

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509842-03	File ID:	24APR17.D
Sampled:	04/23/15 06:45	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 12:58
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9900	99.9	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.100	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.050	100	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208218	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	82162	9.72	87829	9.72	
1,4-Difluorobenzene (IS)	321096	7.52	318940	7.52	

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-4

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-04	File ID:	24APR18.D
Sampled:	04/23/15 07:25	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 13:21
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-4

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-04	File ID:	24APR18.D
Sampled:	04/23/15 07:25	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 13:21
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-4

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-04	File ID:	24APR18.D
Sampled:	04/23/15 07:25	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 13:21
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2113	Sequence:	1506560	Calibration:	1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7500	97.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9900	99.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7100	97.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	211800	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	82174	9.72	87829	9.72	
1,4-Difluorobenzene (IS)	323304	7.52	318940	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-3-2Q15

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-05	File ID:	24APR19.D
Sampled:	04/23/15 07:35	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 13:44
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-3-2Q15

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509842-05	File ID:	24APR19.D
Sampled:	04/23/15 07:35	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 13:44
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2113	Sequence: 1506560	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-3-2Q15

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1509842-05		File ID:	24APR19.D
Sampled:	04/23/15 07:35	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 13:44
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5800	95.8	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.070	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9100	99.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	206390	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	78707	9.72	87829	9.72	
1,4-Difluorobenzene (IS)	309857	7.52	318940	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-3

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-06	File ID:	24APR20.D
Sampled:	04/23/15 08:10	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 14:06
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-3

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-06	File ID:	24APR20.D
Sampled:	04/23/15 08:10	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 14:06
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2113	Sequence:	1506560	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-3

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-06	File ID:	24APR20.D
Sampled:	04/23/15 08:10	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 14:06
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.4700	94.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8000	98.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7700	97.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	210587	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	79890	9.72	87829	9.72	
1,4-Difluorobenzene (IS)	313961	7.52	318940	7.52	

6/9/15 Q

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-2

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-07	File ID:	24APR06.D
Sampled:	04/23/15 08:45	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 08:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-2

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-07	File ID:	24APR06.D
Sampled:	04/23/15 08:45	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 08:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.14	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	10	
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-2

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-07	File ID:	24APR06.D
Sampled:	04/23/15 08:45	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 08:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3800	93.8	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.090	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4000	94.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	205333	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	78809	9.73	87829	9.72	
1,4-Difluorobenzene (IS)	303268	7.52	318940	7.52	

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Tidewater Inc.
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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-1

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-08	File ID:	24APR21.D
Sampled:	04/23/15 09:20	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 14:29
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.35	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-1

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509842-08	File ID:	24APR21.D
Sampled:	04/23/15 09:20	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 14:29
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.27	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.5	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-22-1

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-08	File ID:	24APR21.D
Sampled:	04/23/15 09:20	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 14:29
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3700	93.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.230	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5800	95.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	212534	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	82614	9.73	87829	9.72	
1,4-Difluorobenzene (IS)	312288	7.52	318940	7.52	

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-5

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-09	File ID:	24APR22.D
Sampled:	04/23/15 10:10	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 14:52
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-5

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-09	File ID:	24APR22.D
Sampled:	04/23/15 10:10	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 14:52
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-5

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-09	File ID:	24APR22.D
Sampled:	04/23/15 10:10	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 14:52
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methaerylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8100	98.1	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8600	98.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5900	95.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	207328	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	81428	9.73	87829	9.72	
1,4-Difluorobenzene (IS)	319330	7.52	318940	7.52	

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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-4

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-10	File ID:	24APR23.D
Sampled:	04/23/15 10:50	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 15:14
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-4

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-10	File ID:	24APR23.D
Sampled:	04/23/15 10:50	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 15:14
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-4

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-10	File ID:	24APR23.D
Sampled:	04/23/15 10:50	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 15:14
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8100	98.1	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9800	99.8	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9200	99.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	201068	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	79825	9.72	87829	9.72	
1,4-Difluorobenzene (IS)	307320	7.52	318940	7.52	

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-3

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-11	File ID:	24APR24.D
Sampled:	04/23/15 11:30	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 15:37
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.55	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-3

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1509842-11		File ID:	24APR24.D
Sampled:	04/23/15 11:30	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 15:37
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2113	Sequence: 1506560	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.40	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-3

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1509842-11		File ID:	24APR24.D
Sampled:	04/23/15 11:30	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 15:37
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2113	Sequence: 1506560	Calibration: 1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5400	95.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.230	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3800	93.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	207561	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	80522	9.72	87829	9.72	
1,4-Difluorobenzene (IS)	303795	7.52	318940	7.52	

6/9/15 Q

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-2

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-12	File ID:	24APR28.D
Sampled:	04/23/15 12:20	Prepared:	04/24/15 07:20	Analyzed:	04/24/15 17:08
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2199 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-2

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-12	File ID:	24APR28.D
Sampled:	04/23/15 12:20	Prepared:	04/24/15 07:20	Analyzed:	04/24/15 17:08
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2199 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.27	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-2

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-12	File ID:	24APR28.D
Sampled:	04/23/15 12:20	Prepared:	04/24/15 07:20	Analyzed:	04/24/15 17:08
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2199	Sequence:	1506560	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3100	93.1	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.010	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8700	98.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	209398	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	79506	9.72	87829	9.72	
1,4-Difluorobenzene (IS)	310549	7.52	318940	7.52	

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-1

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-13	File ID:	24APR25.D
Sampled:	04/23/15 12:50	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 16:00
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.47	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-1

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-13	File ID:	24APR25.D
Sampled:	04/23/15 12:50	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 16:00
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.33	J
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.7	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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3761 Attucks Drive
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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-1

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-13	File ID:	24APR25.D
Sampled:	04/23/15 12:50	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 16:00
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8000	98.0	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8300	98.3	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7800	97.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	209009	6.73	210763	6.74	
Chlorobenzene-d5 (IS)	80774	9.72	87829	9.72	
1,4-Difluorobenzene (IS)	315832	7.52	318940	7.52	

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-4-2Q15

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509842-14	File ID:	24APR26.D
Sampled:	04/23/15 11:40	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 16:23
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2113	Sequence:	1506560	Calibration:	1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.62	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-4-2Q15

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-14	File ID:	24APR26.D
Sampled:	04/23/15 11:40	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 16:23
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2113 Sequence: 1506560 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.42	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-4-2Q15

Laboratory:	BC Laboratories		SDG:	1509842	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509842-14	File ID:	24APR26.D
Sampled:	04/23/15 11:40	Prepared:	04/24/15 07:00	Analyzed:	04/24/15 16:23
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2113	Sequence: 1506560	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.2700	92.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.010	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.570	106	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	206140	6.74	210763	6.74	
Chlorobenzene-d5 (IS)	76485	9.72	87829	9.72	
1,4-Difluorobenzene (IS)	309387	7.52	318940	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-26-2

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-15	File ID:	27APR07.D
Sampled:	04/23/15 13:40	Prepared:	04/27/15 06:00	Analyzed:	04/27/15 07:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2251 Sequence: 1506624 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.85	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-26-2

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-15	File ID:	27APR07.D
Sampled:	04/23/15 13:40	Prepared:	04/27/15 06:00	Analyzed:	04/27/15 07:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2251 Sequence: 1506624 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	1.1	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.15	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/9/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-26-2

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-15	File ID:	27APR07.D
Sampled:	04/23/15 13:40	Prepared:	04/27/15 06:00	Analyzed:	04/27/15 07:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2251 Sequence: 1506624 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5700	95.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7600	97.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6000	96.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	207635	6.74	206613	6.73	
Chlorobenzene-d5 (IS)	80877	9.73	79466	9.73	
1,4-Difluorobenzene (IS)	316079	7.52	321573	7.52	

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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-26-1

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-16	File ID:	27APR08.D
Sampled:	04/23/15 14:15	Prepared:	04/27/15 06:00	Analyzed:	04/27/15 08:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2251 Sequence: 1506624 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.24	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/9/15

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Reported: 5/20/2015 3:30:32PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-26-1

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-16	File ID:	27APR08.D
Sampled:	04/23/15 14:15	Prepared:	04/27/15 06:00	Analyzed:	04/27/15 08:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2251 Sequence: 1506624 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.66	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.26	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U UJ
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-26-1

Laboratory:	BC Laboratories			SDG:	1509842
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509842-16	File ID:	27APR08.D
Sampled:	04/23/15 14:15	Prepared:	04/27/15 06:00	Analyzed:	04/27/15 08:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2251 Sequence: 1506624 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5500	95.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.050	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7700	97.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	205655	6.74	206613	6.73	
Chlorobenzene-d5 (IS)	81186	9.73	79466	9.73	
1,4-Difluorobenzene (IS)	309721	7.52	321573	7.52	

6/9/15

LDC #: 34351B1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-3-15
SDG #: 15-09842 Level III Page: 1 of 2
Laboratory: BC Laboratories, Inc. Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA Method 524.2)

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.	Sample receipt/Technical holding times	A, A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	≤20 / ≤30
IV.	Continuing calibration	SW	≤30
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB=1 ; EB=2
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	~~N~~ A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D= 4 +5 , 11+14
XI.	Internal standards	A	
XII.	Compound quantitation RL/~~LOQ/LODs~~	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	TB-4-4/23/15	15-09842-01	Water	04/23/15
2	EB-4-4/23/15	15-09842-02	Water	04/23/15
3	MW-22-5	15-09842-03	Water	04/23/15
4	MW-22-4	15-09842-04	Water	04/23/15
5	DUP-3-2Q15	15-09842-05	Water	04/23/15
6	MW-22-3	15-09842-06	Water	04/23/15
7	MW-22-2	15-09842-07	Water	04/23/15
8	MW-22-1	15-09842-08	Water	04/23/15
9	MW-25-5	15-09842-09	Water	04/23/15
10	MW-25-4	15-09842-10	Water	04/23/15
11	MW-25-3	15-09842-11	Water	04/23/15
12	MW-25-2	15-09842-12	Water	04/23/15
13	MW-25-1	15-09842-13	Water	04/23/15

LDC #: 34351B1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-3-15

SDG #: 15-09842 Level III Page: 2 of 2

Laboratory: BC Laboratories, Inc. Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA Method 524.2)

	Client ID	Lab ID	Matrix	Date
14†	DUP-4-2Q15	15-09842-14	Water	04/23/15
15†	MW-26-2	15-09842-15	Water	04/23/15
16†	MW-26-1	15-09842-16	Water	04/23/15
17	MW-22-2MS	15-09842-07MS	Water	04/23/15
18	MW-22-2MSD	15-09842-07MSD	Water	04/23/15
19	MW-25-2MS	15-09842-12MS	Water	04/23/15
20	MW-25-2MSD	15-09842-12MSD	Water	04/23/15
21	MW-26-2MS	15-09842-15MS	Water	04/23/15
22	MW-26-2MSD	15-09842-15MSD	Water	04/23/15
23				
24				
25				

Notes:

BYD 2113-BLK1						
BYD2199-BLK1						
BYD2251-BLK1						

TARGET COMPOUND WORKSHEET

METHOD: VOA

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

LDC #: 34351B1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS VOA (EPA Method 524.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: <30.0%)	Associated Samples	Qualifications
	~~04/01/15~~	1506621-CCV1	DDD	30.6	15,16,21,22,	J/UJ/P (ND)
	04/27/15				BYD2251-BLK1	

CONCAL 1S5

LDC #: 34351B1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

Compound	Concentration (µg/L) 11	14	RPD
K	0.55	0.62	12
AA	0.40	0.42	5

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 8, 2015

Parameters: Metals

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09842

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-4-4/23/15	15-09842-02	Water	04/23/15
MW-22-5	15-09842-03	Water	04/23/15
MW-22-4	15-09842-04	Water	04/23/15
DUP-3-2Q15	15-09842-05	Water	04/23/15
MW-22-3	15-09842-06	Water	04/23/15
MW-22-2	15-09842-07	Water	04/23/15
MW-22-1	15-09842-08	Water	04/23/15
MW-25-5	15-09842-09	Water	04/23/15
MW-25-4	15-09842-10	Water	04/23/15
MW-25-3	15-09842-11	Water	04/23/15
MW-25-2	15-09842-12	Water	04/23/15
MW-25-1	15-09842-13	Water	04/23/15
DUP-4-2Q15	15-09842-14	Water	04/23/15
MW-26-2	15-09842-15	Water	04/23/15
MW-26-1	15-09842-16	Water	04/23/15
MW-22-2MS	15-09842-07MS	Water	04/23/15
MW-22-2MSD	15-09842-07MSD	Water	04/23/15
MW-22-2DUP	15-09842-07DUP	Water	04/23/15
MW-25-2MS	15-09842-12MS	Water	04/23/15
MW-25-2MSD	15-09842-12MSD	Water	04/23/15
MW-25-2DUP	15-09842-12DUP	Water	04/23/15
MW-26-2MS	15-09842-15MS	Water	04/23/15
MW-26-2MSD	15-09842-15MSD	Water	04/23/15
MW-26-2DUP	15-09842-15DUP	Water	04/23/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium by Environmental Protection Agency (EPA) Methods 200.7/200.8

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of ICS analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron	36.755 ug/L	EB-4-4/23/15 MW-22-5 MW-22-4 DUP-3-2Q15 MW-22-3 MW-22-2 MW-22-1
PB (prep blank)	Iron	15.110 ug/L	MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1 DUP-4-2Q15
PB (prep blank)	Iron	32.503 ug/L	MW-26-2 MW-26-1

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Iron	36.865 ug/L	EB-4-4/23/15 MW-22-5 MW-22-4 DUP-3-2Q15 MW-22-3 MW-22-1
ICB/CCB	Iron	25.653 ug/L	MW-22-2
ICB/CCB	Iron	30.713 ug/L	MW-25-5 MW-25-2
ICB/CCB	Iron	34.391 ug/L	MW-25-4 MW-25-3 MW-25-1 DUP-4-2Q15
ICB/CCB	Iron	30.425 ug/L	MW-26-2
ICB/CCB	Iron	41.980 ug/L	MW-26-1
PB (prep blank)	Chromium	0.55000 ug/L	MW-25-2 MW-25-1 DUP-4-2Q15
PB (prep blank)	Sodium	0.021738 mg/L	EB-4-4/23/15 MW-22-5 MW-22-4 DUP-3-2Q15 MW-22-3 MW-22-2 MW-22-1
PB (prep blank)	Magnesium Sodium	0.021390 mg/L 0.055527 mg/L	MW-26-2 MW-26-1
ICB/CCB	Sodium	0.066514 mg/L	MW-26-2 MW-26-1
ICB/CCB	Calcium Magnesium Sodium	0.064818 mg/L 0.022357 mg/L 0.048996 mg/L	MW-22-2
ICB/CCB	Sodium	0.025777 mg/L	EB-4-4/23/15 MW-22-5 MW-22-4 DUP-3-2Q15 MW-22-3 MW-22-1

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Calcium Sodium	0.030299 mg/L 0.066130 mg/L	MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1 DUP-4-2Q15

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-4-4/23/15	Iron	93 ug/L	93U ug/L
MW-22-5	Iron	58 ug/L	58U ug/L
MW-22-4	Iron	75 ug/L	75U ug/L
DUP-3-2Q15	Iron	67 ug/L	67U ug/L
MW-22-3	Iron	95 ug/L	95U ug/L
MW-22-2	Iron	180 ug/L	180U ug/L
MW-25-5	Iron	56 ug/L	56U ug/L
MW-25-3	Iron	61 ug/L	61U ug/L
MW-25-2	Iron Chromium	71 ug/L 2.6 ug/L	71U ug/L 2.6U ug/L
DUP-4-2Q15	Iron Chromium	46 ug/L 1.7 ug/L	46U ug/L 1.7U ug/L
MW-25-1	Chromium	0.91 ug/L	0.91U ug/L

VI. Field Blanks

Sample EB-4-4/23/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-4-4/23/15	Iron Magnesium Sodium	93 ug/L 0.037 mg/L 0.16 mg/L

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For MW-25-2MS/MSD, no data were qualified for Calcium and for MW-26-2MS/MSD, no data were qualified for Calcium and Sodium percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration. Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
MW-25-2DUP (MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1 DUP-4-2Q15)	Iron	-	50.01 mg/L (≤50.00)	J (all detects)	A

IX. ICP Serial Dilution

ICP serial dilution analysis was performed on an associated project sample. The analysis criteria were met.

X. Laboratory Control Samples (LCS)

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

Samples MW-22-4 and DUP-3-2Q15 and samples MW-25-3 and DUP-4-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-22-4	DUP-3-2Q15	
Arsenic	1.1	1.2	9
Calcium	34000	35000	3
Chromium	2.0	2.7	30
Iron	75	67	11
Magnesium	11000	12000	9
Potassium	1700	1700	0
Sodium	29000	29000	0

Analyte	Concentration (ug/L)		RPD
	MW-25-3	DUP-4-2Q15	
Arsenic	0.72	0.70U	200
Calcium	84000	86000	2
Chromium	3.1	1.7	58
Iron	61	46	28
Magnesium	27000	28000	4
Potassium	3100	3100	0
Sodium	37000	38000	3

XII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

XIII. Sample Result Verification

Raw data were not reviewed for Level III validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due DUP difference, data were qualified as estimated in six samples.

Due to laboratory blank contamination, data were qualified as not detected in eleven samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Metals - Data Qualification Summary - SDG 15-09842

Sample	Analyte	Flag	A or P	Reason
MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1 DUP-4-2Q15	Iron	J (all detects)	A	Duplicate sample analysis (difference)

NASA JPL, 2Q2015
Metals - Laboratory Blank Data Qualification Summary - SDG 15-09842

Sample	Analyte	Modified Final Concentration	A or P
EB-4-4/23/15	Iron	93U ug/L	A
MW-22-5	Iron	58U ug/L	A
MW-22-4	Iron	75U ug/L	A
DUP-3-2Q15	Iron	67U ug/L	A
MW-22-3	Iron	95U ug/L	A
MW-22-2	Iron	180U ug/L	A
MW-25-5	Iron	56U ug/L	A
MW-25-3	Iron	61U ug/L	A
MW-25-2	Iron Chromium	71U ug/L 2.6U ug/L	A
DUP-4-2Q15	Iron Chromium	46U ug/L 1.7U ug/L	A
MW-25-1	Chromium	0.91U ug/L	A

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02
File ID: PE2_150430-072
Sampled: 04/23/15 06:15
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:08
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1507215
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	93	1	U	EPA-200.7

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03
File ID: PE2_150430-073
Sampled: 04/23/15 06:45
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:10
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1507215
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	58	1	U	EPA-200.7

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EPA-200.7

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04
File ID: PE2_150430-074
Sampled: 04/23/15 07:25
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:13
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1507215
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	75	1	U	EPA-200.7

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DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05
File ID: PE2_150430-075
Sampled: 04/23/15 07:35
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:16
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1507215
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	67	1	U	EPA-200.7

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EPA-200.7

MW-22-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-06
File ID: PE2_150430-076
Sampled: 04/23/15 08:10
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1507215
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	95	1	U	EPA-200.7

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EPA-200.7

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07
File ID: PE2_150430-114
Sampled: 04/23/15 08:45
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 16:50
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1507215
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	180	1	U	EPA-200.7

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08
File ID: PE2_150430-077
Sampled: 04/23/15 09:20
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1507215
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	550	1		EPA-200.7

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09
File ID: PE2_150504-107
Sampled: 04/23/15 10:10
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:29
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	56	1	UJ	EPA-200.7

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10
File ID: PE2_150504-112
Sampled: 04/23/15 10:50
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	200	1	J	EPA-200.7

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11
File ID: PE2_150504-113
Sampled: 04/23/15 11:30
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	61	1	UJ	EPA-200.7

6/9/15 Q

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EPA-200.7

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12
File ID: PE2_150504-101
Sampled: 04/23/15 12:20
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:14
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	71	1	U5	EPA-200.7

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13
File ID: PE2_150504-114
Sampled: 04/23/15 12:50
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	550	1	J	EPA-200.7

6/9/15 g

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14
File ID: PE2_150504-115
Sampled: 04/23/15 11:40
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	46	1	J U5	EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15
File ID: PE2_150506-030
Sampled: 04/23/15 13:40
Prepared: 05/01/15 09:30
Analyzed: 05/06/15 14:56
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1000	1		EPA-200.7

6/9/15 ✓

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16
File ID: PE2_150506-038
Sampled: 04/23/15 14:15
Prepared: 05/01/15 09:30
Analyzed: 05/06/15 15:16
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6300	1		EPA-200.7

6/9/15 Q

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02
File ID: PE_EL2_150430-124
Sampled: 04/23/15 06:15
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 17:13
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03
File ID: PE_EL2_150430-125
Sampled: 04/23/15 06:45
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 17:16
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Tidewater Inc.
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Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04
File ID: PE_EL2_150430-126
Sampled: 04/23/15 07:25
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 17:19
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.1	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	2.0	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05
File ID: PE_EL2_150430-127
Sampled: 04/23/15 07:35
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 17:22
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.2	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	2.7	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-22-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-06
File ID: PE_EL2_150430-128
Sampled: 04/23/15 08:10
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 17:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.3	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	2.4	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Tidewater Inc.
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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07
File ID: PE_EL2_150430-113
Sampled: 04/23/15 08:45
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 16:34
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.1	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.7	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/9/15

Tidewater Inc.
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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08
File ID: PE_EL2_150430-129
Sampled: 04/23/15 09:20
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 17:28
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.1	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09
File ID: PE_EL2_150430-130
Sampled: 04/23/15 10:10
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 17:31
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.1	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	0.51	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10
File ID: PE_EL2_150430-131
Sampled: 04/23/15 10:50
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 17:35
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.96	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.5	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11
File ID: PE_EL2_150430-132
Sampled: 04/23/15 11:30
Prepared: 04/30/15 09:30
Analyzed: 04/30/15 17:38
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2643
Sequence: 1506960
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.72	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	3.1	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12
File ID: PE_EL2_150501-058
Sampled: 04/23/15 12:20
Prepared: 04/30/15 18:35
Analyzed: 05/01/15 12:22
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0002
Sequence: 1507108
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.97	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	2.6	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13
File ID: PE_EL2_150504-272
Sampled: 04/23/15 12:50
Prepared: 04/30/15 18:35
Analyzed: 05/05/15 03:40
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0002
Sequence: 1507195
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.91	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14
File ID: PE_EL2_150504-273
Sampled: 04/23/15 11:40
Prepared: 04/30/15 18:35
Analyzed: 05/05/15 03:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0002
Sequence: 1507195
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.7	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15
File ID: PE_EL2_150504-185
Sampled: 04/23/15 13:40
Prepared: 05/01/15 08:30
Analyzed: 05/04/15 23:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0050
Sequence: 1507175
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.2	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.79	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16
File ID: PE_EL2_150504-228
Sampled: 04/23/15 14:15
Prepared: 05/01/15 08:30
Analyzed: 05/05/15 01:22
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0050
Sequence: 1507175
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02
File ID: PE2_150430-072
Sampled: 04/23/15 06:15
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:08
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1506946
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.018	1	U	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.037	1	J	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.16	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03
File ID: PE2_150430-073
Sampled: 04/23/15 06:45
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:10
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1506946
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	5.0	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	1.3	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	71	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	0.79	1	J	EPA-200.7

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04
File ID: PE2_150430-074
Sampled: 04/23/15 07:25
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:13
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1506946
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	34	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	11	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	29	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.7	1		EPA-200.7

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05
File ID: PE2_150430-075
Sampled: 04/23/15 07:35
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:16
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1506946
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	35	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	12	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	29	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.7	1		EPA-200.7

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-22-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-06
File ID: PE2_150430-076
Sampled: 04/23/15 08:10
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1506946
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	44	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	15	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	34	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.9	1		EPA-200.7

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Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07
File ID: PE2_150430-051
Sampled: 04/23/15 08:45
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 13:10
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1506946
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	60	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	25	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	33	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08
File ID: PE2_150430-077
Sampled: 04/23/15 09:20
Prepared: 04/30/15 08:30
Analyzed: 04/30/15 14:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYD2640
Sequence: 1506946
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	150	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	54	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	36	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

5/9/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09
File ID: PE2_150504-107
Sampled: 04/23/15 10:10
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:29
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	5.4	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	4.3	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	65	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

6/9/15 8

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10
File ID: PE2_150504-112
Sampled: 04/23/15 10:50
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	81	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	25	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	48	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.4	1		EPA-200.7

6/9/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11
File ID: PE2_150504-113
Sampled: 04/23/15 11:30
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	84	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	27	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	37	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

6/9/15 Q

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12
File ID: PE2_150504-101
Sampled: 04/23/15 12:20
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:14
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	81	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	29	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	33	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.7	1		EPA-200.7

6/9/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13
File ID: PE2_150504-114
Sampled: 04/23/15 12:50
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	98	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	34	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	37	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14
File ID: PE2_150504-115
Sampled: 04/23/15 11:40
Prepared: 04/30/15 18:05
Analyzed: 05/04/15 17:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0001
Sequence: 1507285
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	86	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	28	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

6/9/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15
File ID: PE2_150504-158
Sampled: 04/23/15 13:40
Prepared: 05/01/15 09:30
Analyzed: 05/04/15 20:27
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507290
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	54	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	32	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	43	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

6/9/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 12:12:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16
File ID: PE2_150504-164
Sampled: 04/23/15 14:15
Prepared: 05/01/15 09:30
Analyzed: 05/04/15 20:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507290
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	110	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	40	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	35	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

6/9/15

LDC #: 34351B4a

SDG #: 15-09842

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-1-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

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.	Sample receipt/Technical holding times	A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	SW	EB = 2
VII.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD #20/21: Ca-4x #23/24: Ca, Na-4x
VIII.	Duplicate sample analysis	SW	DUP
IX.	ICP Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	SW	D = 4+5, D = 11+14
XII.	Internal Standard (ICP-MS)	N	not reviewed
XIII.	Sample Result Verification	N	
XIV.	Overall Assessment of Data	A	

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; SB=Source blank; OTHER:

		Client ID	Lab ID	Matrix	Date
MG	~~1~~	~~TB-4-4/23/15~~	~~15-09842-01~~	~~Water~~	~~04/23/15~~
2	1	EB-4-4/23/15	15-09842-02	Water	04/23/15
3	1	MW-22-5	15-09842-03	Water	04/23/15
4	1	MW-22-4	15-09842-04	Water	04/23/15
5	1	DUP-3-2Q15	15-09842-05	Water	04/23/15
6	1	MW-22-3	15-09842-06	Water	04/23/15
7	1	MW-22-2	15-09842-07	Water	04/23/15
8	1	MW-22-1	15-09842-08	Water	04/23/15
9	2	MW-25-5	15-09842-09	Water	04/23/15
10	2	MW-25-4	15-09842-10	Water	04/23/15
11	2	MW-25-3	15-09842-11	Water	04/23/15
12	2	MW-25-2	15-09842-12	Water	04/23/15
13	2	MW-25-1	15-09842-13	Water	04/23/15
14	2	DUP-4-2Q15	15-09842-14	Water	04/23/15
15	3	MW-26-2	15-09842-15	Water	04/23/15

LDC #: 34351B4a

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-1-15

SDG #: 15-09842

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: 9

METHDD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16 3	MW-26-1	15-09842-16	Water	04/23/15
17 1	MW-22-2MS	15-09842-07MS	Water	04/23/15
18 1	MW-22-2MSD	15-09842-07MSD	Water	04/23/15
19 1	MW-22-2DUP	15-09842-07DUP	Water	04/23/15
20 2	MW-25-2MS	15-09842-12MS	Water	04/23/15
21 2	MW-25-2MSD	15-09842-12MSD	Water	04/23/15
22 2	MW-25-2DUP	15-09842-12DUP	Water	04/23/15
23 3	MW-26-2MS	15-09842-15MS	Water	04/23/15
24 3	MW-26-2MSD	15-09842-15MSD	Water	04/23/15
25 3	MW-26-2DUP	15-09842-15DUP	Water	04/23/15
26				
27				
28	PBW			
29	PBW			
30	PBW			

Notes:

200.7 batching is different than the 200.8 batching

LDC #: 34351B4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: MG
2nd reviewer: ✓

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
2 → 16	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
QC 17→25	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
Analysis Method		
ICP	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
ICP-MS	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-

Comments: Mercury by CVAA if performed

LDC #: 34351B4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA

Reviewer: MG
2nd Reviewer: G

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 2-8

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	2	3	4	5	6	7				
Fe		36.755		183.8	93	58	75	67	95	180				

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 9-14

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	9	11	12	14						
Fe		15.110		75.6	56	61	71	46						

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 15,16 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	No Qual's.									
Fe		32.503		162.5										

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 2-6,8

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	2	3	4	5	6					
Fe			36.865	184.3	see PB	see PB	see PB	see PB	see PB					

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 7 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	No Qual.									
Fe			25.653	128.3										

LDC #: 34351B4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA

Reviewer: MG
2nd Reviewer: [illegible]

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 9,12

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	9	12								
Fe			30.713	153.6	see PB	see PB								

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 10,11,13,14

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	11	14								
Fe			34.391	172.0	see PB	see PB								

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 15 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	No Qual.									
Fe			30.425	152.1										

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 16 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	No Qual.									
Fe			41.980	209.9										

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 12,13,14

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	12	13	14							
Cr		0.55000		2.75	2.6	0.91	1.7							

LDC #: 34351B4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA

Reviewer: MG
2nd Reviewer:

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 2-8 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na		0.021738		0.109										

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 15,16 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Mg		0.021390		0.107										
Na		0.055527	0.066514	0.333										

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 7 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Ca			0.064818	0.324										
Mg			0.022357	0.112										
Na			0.048996	0.245										

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 2-6,8 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na			0.025777	0.129										

LDC #: 34351B4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA
Associated Samples: 9-14 (>5x)

Reviewer: MG
2nd Reviewer: 4

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Ca			0.030299	0.151										
Na			0.066130	0.331										

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

LDC #: 34351B4a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: ~~N~~

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

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

Sample: 2 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Fe	93 (µg/L)
Mg	0.037 (mg/L)
Na	0.16 (↓)

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Analyte	Concentration Units ( )

LDC #: 34351134a

VALIDATION FINDINGS WORKSHEET
Duplicate Analysis

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

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a duplicate sample analyzed for each matrix in this SDG?

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤ 35% for soil samples? If no, see qualifications below. A control limit of ±R.L. (±2X R.L. for soil) was used for sample values that were <5X the R.L., including the case when only one of the duplicate sample values was <5X R.L.. If field blanks were used for laboratory duplicates, note in the Overall Assessment.

LEVEL IV ONLY:

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

#	Date	Duplicate ID	Matrix	Analyte	RPD (Limits)	Difference (Limits)	Associated Samples	Qualifications
1		22	water	Fe		50.01 mg/L (≤ 50.00)	9→14	J/UJ/A (all det)

Comments: # 19: As OK by difference

DUP.4SW

LDC#: 34351B4a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

Analyte	Concentration (ug/L)		RPD	
	4	5		
Arsenic	1.1	1.2	9	
Calcium	34000	35000	3	
Chromium	2.0	2.7	30	
Iron	75	67	11	
Magnesium	11000	12000	9	
Potassium	1700	1700	0	
Sodium	29000	29000	0	

V:\FIELD DUPLICATES\FD_inorganic\34351B4a.wpd

Analyte	Concentration (ug/L)		RPD	
	11	14		
Arsenic	0.72	0.70U	200	
Calcium	84000	86000	2	
Chromium	3.1	1.7	58	
Iron	61	46	28	
Magnesium	27000	28000	4	
Potassium	3100	3100	0	
Sodium	37000	38000	3	

V:\FIELD DUPLICATES\FD_inorganic\34351B4a.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 8, 2015

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09842

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-4-4/23/15	15-09842-02	Water	04/23/15
MW-22-5	15-09842-03	Water	04/23/15
MW-22-4	15-09842-04	Water	04/23/15
DUP-3-2Q15	15-09842-05	Water	04/23/15
MW-22-3	15-09842-06	Water	04/23/15
MW-22-2	15-09842-07	Water	04/23/15
MW-22-1	15-09842-08	Water	04/23/15
MW-25-5	15-09842-09	Water	04/23/15
MW-25-4	15-09842-10	Water	04/23/15
MW-25-3	15-09842-11	Water	04/23/15
MW-25-2	15-09842-12	Water	04/23/15
MW-25-1	15-09842-13	Water	04/23/15
DUP-4-2Q15	15-09842-14	Water	04/23/15
MW-26-2	15-09842-15	Water	04/23/15
MW-26-1	15-09842-16	Water	04/23/15
EB-4-4/23/15DUP	15-09842-02DUP	Water	04/23/15
MW-22-2MS	15-09842-07MS	Water	04/23/15
MW-22-2MSD	15-09842-07MSD	Water	04/23/15
MW-22-2DUP	15-09842-07DUP	Water	04/23/15
MW-25-2MS	15-09842-12MS	Water	04/23/15
MW-25-2MSD	15-09842-12MSD	Water	04/23/15
MW-25-2DUP	15-09842-12DUP	Water	04/23/15
MW-26-2MS	15-09842-15MS	Water	04/23/15
MW-26-2MSD	15-09842-15MSD	Water	04/23/15
MW-26-2DUP	15-09842-15DUP	Water	04/23/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Hexavalent Chromium by EPA SW 846 Method 7196
Nitrite as Nitrogen by EPA Method 353.2
Perchlorate by EPA Method 314.0
pH by EPA Method 150.1
Total Dissolved Solids by EPA Method 160.1

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB-4-4/23/15	pH	107.75 hours	48 hours	J (all detects)	P
MW-22-5	pH	108.28 hours	48 hours	J (all detects)	P
MW-22-4	pH	107.73 hours	48 hours	J (all detects)	P
DUP-3-2Q15	pH	107.68 hours	48 hours	J (all detects)	P
MW-22-3	pH	107.20 hours	48 hours	J (all detects)	P
MW-22-2	pH	107.05 hours	48 hours	J (all detects)	P
MW-22-1	pH	106.68 hours	48 hours	J (all detects)	P
MW-25-5	pH	106.00 hours	48 hours	J (all detects)	P
MW-25-4	pH	105.45 hours	48 hours	J (all detects)	P
MW-25-3	pH	104.92 hours	48 hours	J (all detects)	P
MW-25-2	pH	104.23 hours	48 hours	J (all detects)	P
MW-25-1	pH	103.90 hours	48 hours	J (all detects)	P
DUP-4-2Q15	pH	105.23 hours	48 hours	J (all detects)	P
MW-26-2	pH	103.43 hours	48 hours	J (all detects)	P
MW-26-1	pH	102.98 hours	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method(s). No contaminants were found in the laboratory blanks.

V. Field Blanks

Sample EB-4-4/23/15 was identified as an equipment. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-4-4/23/15	pH Chloride Nitrate as N Sulfate	5.14 pH units 0.14 mg/L 0.023 mg/L 0.29 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples MW-22-4 and DUP-3-2Q15 and samples MW-25-3 and DUP-4-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-22-4	DUP-3-2Q15	
Total Alkalinity	150 mg/L	150 mg/L	0
Bicarbonate	180 mg/L	180 mg/L	0
Chloride	12 mg/L	12 mg/L	0
Hexavalent Chromium	0.0012 mg/L	0.0014 mg/L	15
Nitrate as N	4.2 mg/L	4.2 mg/L	0
pH	8.25 pH units	8.28 pH units	0
Sulfate	10 mg/L	10 mg/L	0
Total dissolved solids	240 mg/L	240 mg/L	0

Analyte	Concentration		RPD
	MW-25-3	DUP-4-2Q15	
Total Alkalinity	210 mg/L	200 mg/L	5
Bicarbonate	250 mg/L	240 mg/L	4
Chloride	47 mg/L	49 mg/L	4
Hexavalent Chromium	0.0019 mg/L	0.0019 mg/L	0
Nitrate as N	8.2 mg/L	8.0 mg/L	2
Perchlorate	10 ug/L	11 ug/L	10
pH	7.74 pH units	7.25 pH units	7
Sulfate	74 mg/L	76 mg/L	3
Total dissolved solids	460 mg/L	450 mg/L	2

X. Sample Result Verification

Raw data were not reviewed for Level III validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to technical holding time, data were qualified as estimated in fifteen samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Wet Chemistry - Data Qualification Summary - SDG 15-09842

Sample	Analyte	Flag	A or P	Reason
EB-4-4/23/15	pH	J (all detects)	P	Technical holding time
MW-22-5				
MW-22-4				
DUP-3-2Q15				
MW-22-3				
MW-22-2				
MW-22-1				
MW-25-5				
MW-25-4				
MW-25-3				
MW-25-2				
MW-25-1				
DUP-4-2Q15				
MW-26-2				
MW-26-1				

NASA JPL, 2Q2015
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 15-09842

No Sample Data Qualified in this SDG

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02
File ID: Tiamo042715-089
Sampled: 04/23/15 06:15
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 18:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.14	1	J	EPA-150.1

4/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03
File ID: Tiamo042715-100
Sampled: 04/23/15 06:45
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 19:02
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.12	1	J	EPA-150.1

6/9/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04
File ID: Tiamo042715-101
Sampled: 04/23/15 07:25
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 19:09
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.25	1	H	EPA-150.1

6/9/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05
File ID: Tiamo042715-102
Sampled: 04/23/15 07:35
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 19:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.28	1	J	EPA-150.1

6/9/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-22-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-06
File ID: Tiamo042715-103
Sampled: 04/23/15 08:10
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 19:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.32	1	J	EPA-150.1

6/9/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07
File ID: Tiamo042715-108
Sampled: 04/23/15 08:45
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 19:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.22	1	J	EPA-150.1

6/9/15

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SIIEET

EPA-150.1

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08
File ID: Tiamo042715-110
Sampled: 04/23/15 09:20
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.88	1	J	EPA-150.1

6/9/15

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09
File ID: Tiamo042715-111
Sampled: 04/23/15 10:10
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.92	1	5	EPA-150.1

6/9/15 9

Tidewater Inc.
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Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10
File ID: Tiamo042715-112
Sampled: 04/23/15 10:50
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.85	1	5	EPA-150.1

5/7/15

BC Laboratories, Inc.
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Tidewater Inc.
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Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11
File ID: Tiamo042715-113
Sampled: 04/23/15 11:30
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.74	1	J	EPA-150.1

6/9/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12
File ID: Tiamo042715-114
Sampled: 04/23/15 12:20
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.52	1	J	EPA-150.1

6/9/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13
File ID: Tiamo042715-115
Sampled: 04/23/15 12:50
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
----	pH	6.99	1	J	EPA-150.1

6/9/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14
File ID: Tiamo042715-116
Sampled: 04/23/15 11:40
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
----	pH	7.25	1	J	EPA-150.1

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15
File ID: Tiamo042715-117
Sampled: 04/23/15 13:40
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 21:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: I506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.24	1	J	EPA-150.1

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16
File ID: Tiamo042715-118
Sampled: 04/23/15 14:15
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 21:14
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	6.73	1	J	EPA-150.1

6/9/15

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3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02
File ID:
Sampled: 04/23/15 06:15
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	6.7	0.667	UD	EPA-160.1

6/9/15

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03
File ID:
Sampled: 04/23/15 06:45
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	230	2	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04
File ID:
Sampled: 04/23/15 07:25
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	240	2	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05
File ID:
Sampled: 04/23/15 07:35
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	240	2	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-22-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-06
File ID:
Sampled: 04/23/15 08:10
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	300	2	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07
File ID:
Sampled: 04/23/15 08:45
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	400	2	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08
File ID:
Sampled: 04/23/15 09:20
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	780	5	D	EPA-160.1

6/9/15

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09
File ID:
Sampled: 04/23/15 10:10
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	260	2	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10
File ID:
Sampled: 04/23/15 10:50
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	460	3.33	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11
File ID:
Sampled: 04/23/15 11:30
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2432
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	460	3.33	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12
File ID:
Sampled: 04/23/15 12:20
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2433
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	490	3.33	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13
File ID:
Sampled: 04/23/15 12:50
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2433
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	550	3.33	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14
File ID:
Sampled: 04/23/15 11:40
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2433
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	450	3.33	D	EPA-160.1

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15
File ID:
Sampled: 04/23/15 13:40
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2433
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	450	2	D	EPA-160.1

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Tidewater Inc.
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16
File ID:
Sampled: 04/23/15 14:15
Prepared: 04/28/15 14:00
Analyzed: 04/28/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2433
Sequence: 1507044
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	560	3.33	D	EPA-160.1

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02
File ID: E042415.seq-09
Sampled: 04/23/15 06:15
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 10:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.14	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.023	1	J	EPA-300.0
14808-79-8	Sulfate	0.29	1	J	EPA-300.0

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03
File ID: E042415.seq-10
Sampled: 04/23/15 06:45
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 10:58
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03RE1
File ID: B051015.seq-29
Sampled: 04/23/15 06:45
Prepared: 05/10/15 01:00
Analyzed: 05/10/15 10:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0826
Sequence: 1507550
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	7.2	1		EPA-300.0
14808-79-8	Sulfate	40	1		EPA-300.0

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04
File ID: E042415.seq-11
Sampled: 04/23/15 07:25
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 11:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	12	1		EPA-300.0
14797-55-8	Nitrate as N	4.2	1		EPA-300.0
14808-79-8	Sulfate	10	1		EPA-300.0

6/9/15

Tidewater Inc.
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05
File ID: E042415.seq-12
Sampled: 04/23/15 07:35
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 11:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	12	1		EPA-300.0
14797-55-8	Nitrate as N	4.2	1		EPA-300.0
14808-79-8	Sulfate	10	1		EPA-300.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-22-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-06
File ID: E042415.seq-15
Sampled: 04/23/15 08:10
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 12:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	22	1		EPA-300.0
14797-55-8	Nitrate as N	6.4	1		EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07
File ID: E042415.seq-05
Sampled: 04/23/15 08:45
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 09:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	48	1		EPA-300.0
14797-55-8	Nitrate as N	8.3	1		EPA-300.0
14808-79-8	Sulfate	46	1		EPA-300.0

6/9/15

Tidewater Inc.
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08
File ID: E042415.seq-16
Sampled: 04/23/15 09:20
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 12:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	120	2	D	EPA-300.0
14797-55-8	Nitrate as N	12	2	D	EPA-300.0
14808-79-8	Sulfate	180	2	D	EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09
File ID: E042415.seq-17
Sampled: 04/23/15 10:10
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	15	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	57	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10
File ID: E042415.seq-18
Sampled: 04/23/15 10:50
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 13:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	54	1		EPA-300.0
14797-55-8	Nitrate as N	6.0	1		EPA-300.0
14808-79-8	Sulfate	80	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11
File ID: E042415.seq-19
Sampled: 04/23/15 11:30
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 13:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2151
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	47	1		EPA-300.0
14797-55-8	Nitrate as N	8.2	1		EPA-300.0
14808-79-8	Sulfate	74	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12
File ID: E042415.seq-22
Sampled: 04/23/15 12:20
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 14:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2152
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	50	1		EPA-300.0
14797-55-8	Nitrate as N	8.7	1		EPA-300.0
14808-79-8	Sulfate	82	1		EPA-300.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13
File ID: E042415.seq-28
Sampled: 04/23/15 12:50
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 16:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2152
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	68	1		EPA-300.0
14797-55-8	Nitrate as N	9.0	1		EPA-300.0
14808-79-8	Sulfate	130	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14
File ID: E042415.seq-29
Sampled: 04/23/15 11:40
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 16:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2152
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	49	1		EPA-300.0
14797-55-8	Nitrate as N	8.0	1		EPA-300.0
14808-79-8	Sulfate	76	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15
File ID: E042415.seq-30
Sampled: 04/23/15 13:40
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 16:46
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2152
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	63	1		EPA-300.0
14797-55-8	Nitrate as N	3.0	1		EPA-300.0
14808-79-8	Sulfate	71	1		EPA-300.0

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16
File ID: E042415.seq-31
Sampled: 04/23/15 14:15
Prepared: 04/24/15 08:00
Analyzed: 04/24/15 17:03
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2152
Sequence: 1507206
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	75	1		EPA-300.0
14797-55-8	Nitrate as N	6.1	1		EPA-300.0
14808-79-8	Sulfate	110	1		EPA-300.0

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02RE1
File ID: F050215.seq-39.0000.txt
Sampled: 04/23/15 06:15
Prepared: 05/04/15 09:00
Analyzed: 05/04/15 17:29
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0280
Sequence: 1507174
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03RE1
File ID: F050215.seq-40.0000.txt
Sampled: 04/23/15 06:45
Prepared: 05/04/15 09:00
Analyzed: 05/04/15 17:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0280
Sequence: 1507174
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15 [illegible]

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04RE1
File ID: F050215.seq-41.0000.txt
Sampled: 04/23/15 07:25
Prepared: 05/04/15 09:00
Analyzed: 05/04/15 17:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0280
Sequence: 1507174
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

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Tidewater Inc.
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05RE1
File ID: F050215.seq-42.0000.txt
Sampled: 04/23/15 07:35
Prepared: 05/04/15 09:00
Analyzed: 05/04/15 18:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0280
Sequence: 1507174
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/9/15

Tidewater Inc.
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-22-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-06RE1
File ID: F050215.seq-43.0000.txt
Sampled: 04/23/15 08:10
Prepared: 05/04/15 09:00
Analyzed: 05/04/15 18:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0280
Sequence: 1507174
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.9	1	J	EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07RE1
File ID: F050215.seq-38.0000.txt
Sampled: 04/23/15 08:45
Prepared: 05/04/15 09:00
Analyzed: 05/04/15 17:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0280
Sequence: 1507174
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.0	1	J	EPA-314.0

6/9/15

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3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08RE1
File ID: F050215.seq-48.0000.txt
Sampled: 04/23/15 09:20
Prepared: 05/04/15 09:00
Analyzed: 05/04/15 21:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0280
Sequence: 1507174
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.1	1	J	EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09RE1
File ID: F050215.seq-49.0000.txt
Sampled: 04/23/15 10:10
Prepared: 05/04/15 09:00
Analyzed: 05/04/15 22:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0280
Sequence: 1507174
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/21/2015 3:54:01PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. 2015 Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10RE2
File ID: F050615.seq-23.0000.txt
Sampled: 04/23/15 10:50
Prepared: 05/06/15 03:00
Analyzed: 05/06/15 08:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0556
Sequence: 1507402
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	9.3	1		EPA-314.0

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/21/2015 3:54:01PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. 2015 Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11RE1
File ID: F050515.seq-30.0000.txt
Sampled: 04/23/15 11:30
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 09:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0290
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	10	1		EPA-314.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12RE1
File ID: F050515.seq-29.0000.txt
Sampled: 04/23/15 12:20
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0290
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	14	1		EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13RE1
File ID: F050515.seq-31.0000.txt
Sampled: 04/23/15 12:50
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 09:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0290
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	9.3	1		EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14RE1
File ID: F050515.seq-32.0000.txt
Sampled: 04/23/15 11:40
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 09:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0290
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	11	1		EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: .David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15RE1
File ID: F050515.seq-35.0000.txt
Sampled: 04/23/15 13:40
Prepared: 05/05/15 01:38
Analyzed: 05/05/15 10:23
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0291
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.6	1	J	EPA-314.0

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16RE1
File ID: F050515.seq-33.0000.txt
Sampled: 04/23/15 14:15
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 09:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0290
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.9	1	J	EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02
File ID: 150424 0815 NO2-030
Sampled: 04/23/15 06:15
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03
File ID: 150424 0815 NO2-031
Sampled: 04/23/15 06:45
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15 Q

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04
File ID: 150424 0815 NO2-032
Sampled: 04/23/15 07:25
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05
File ID: 150424 0815 NO2-033
Sampled: 04/23/15 07:35
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-22-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-06
File ID: 150424 0815 NO2-036
Sampled: 04/23/15 08:10
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07
File ID: 150424 0815 NO2-026
Sampled: 04/23/15 08:45
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08
File ID: 150424 0815 NO2-037
Sampled: 04/23/15 09:20
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15 [illegible]

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3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09
File ID: 150424 0815 NO2-038
Sampled: 04/23/15 10:10
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10
File ID: 150424 0815 NO2-039
Sampled: 04/23/15 10:50
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11
File ID: 150424 0815 NO2-040
Sampled: 04/23/15 11:30
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2191
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/9/15 x

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12
File ID: 150424 0815 NO2-043
Sampled: 04/23/15 12:20
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2192
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13
File ID: 150424 0815 NO2-049
Sampled: 04/23/15 12:50
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2192
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14
File ID: 150424 0815 NO2-050
Sampled: 04/23/15 11:40
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2192
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15
File ID: 150424 0815 NO2-052
Sampled: 04/23/15 13:40
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2194
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	2.1	5	D	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16
File ID: 150424 0815 NO2-058
Sampled: 04/23/15 14:15
Prepared: 04/24/15 08:15
Analyzed: 04/24/15 08:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2192
Sequence: 1506667
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	1.2	5	D	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02
File ID: 150424 0004 CR6-009
Sampled: 04/23/15 06:15
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15 &

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03
File ID: 150424 0004 CR6-010
Sampled: 04/23/15 06:45
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15

BC Laboratories, Inc.
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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/21/2015 3:54:01PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. 2015 Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04
File ID: 150424 0004 CR6-011
Sampled: 04/23/15 07:25
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0012	1	J	EPA-7196

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05
File ID: 150424 0004 CR6-012
Sampled: 04/23/15 07:35
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0014	1	J	EPA-7196

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-22-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-06
File ID: 150424 0004 CR6-015
Sampled: 04/23/15 08:10
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0013	1	J	EPA-7196

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07
File ID: 150424 0004 CR6-005
Sampled: 04/23/15 08:45
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00092	1	J	EPA-7196

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08
File ID: 150424 0004 CR6-016
Sampled: 04/23/15 09:20
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09
File ID: 150424 0004 CR6-017
Sampled: 04/23/15 10:10
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10
File ID: 150424 0004 CR6-018
Sampled: 04/23/15 10:50
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/9/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11
File ID: 150424 0004 CR6-033
Sampled: 04/23/15 11:30
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:23
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2195
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0019	1	J	EPA-7196

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12
File ID: 150424 0004 CR6-022
Sampled: 04/23/15 12:20
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2197
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0011	1	J	EPA-7196

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13
File ID: 150424 0004 CR6-028
Sampled: 04/23/15 12:50
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2197
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14
File ID: 150424 0004 CR6-029
Sampled: 04/23/15 11:40
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2197
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0019	1	J	EPA-7196

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15
File ID: 150424 0004 CR6-030
Sampled: 04/23/15 13:40
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2197
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00084	1	J	EPA-7196

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16
File ID: 150424 0004 CR6-038
Sampled: 04/23/15 14:15
Prepared: 04/24/15 00:04
Analyzed: 04/24/15 00:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2197
Sequence: 1506657
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

EB-4-4/23/15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-02
File ID: Tiamo042715-089
Sampled: 04/23/15 06:15
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 18:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.0	1	U	SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.1	1	U	SM-2320B

6/9/15

Tidewater Inc.
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-22-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-03
File ID: Tiamo042715-100
Sampled: 04/23/15 06:45
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 19:02
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	82	1		SM-2320B
3812-32-6	Carbonate	20	1		SM-2320B
---	Total Alkalinity as CaCO3	100	1		SM-2320B

6/9/15 8

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-22-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-04
File ID: Tiamo042715-101
Sampled: 04/23/15 07:25
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 19:09
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	180	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	150	1		SM-2320B

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

DUP-3-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-05
File ID: Tiamo042715-102
Sampled: 04/23/15 07:35
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 19:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	180	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	150	1		SM-2320B

5/9/15

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-22-3

Laboratory: BC Laboratorics
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Watcr
Laboratory ID: 1509842-06
File ID: Tiamo042715-103
Sampled: 04/23/15 08:10
Prepared: 04/27/I5 07:30
Analyzed: 04/27/15 I9:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2292
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	190	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	I60	1		SM-2320B

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-22-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-07
File ID: Tiamo042715-108
Sampled: 04/23/15 08:45
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 19:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	220	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	180	1		SM-2320B

6/9/15

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-22-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-08
File ID: Tiamo042715-110
Sampled: 04/23/15 09:20
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	290	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	240	2	D	SM-2320B

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-25-5

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-09
File ID: Tiamo042715-111
Sampled: 04/23/15 10:10
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	83	1		SM-2320B
3812-32-6	Carbonate	8.6	1		SM-2320B
---	Total Alkalinity as CaCO3	82	1		SM-2320B

5/9/15

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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-25-4

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-10
File ID: Tiamo042715-112
Sampled: 04/23/15 10:50
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	270	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	220	1		SM-2320B

6/9/15

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3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-25-3

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-11
File ID: Tiamo042715-113
Sampled: 04/23/15 11:30
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	250	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
----	Total Alkalinity as CaCO3	210	1		SM-2320B

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3761 Attucks Drive
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-25-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-12
File ID: Tiamo042715-114
Sampled: 04/23/15 12:20
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	240	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	200	1		SM-2320B

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-25-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-13
File ID: Tiamo042715-115
Sampled: 04/23/15 12:50
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	230	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	190	2	D	SM-2320B

5/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

DUP-4-2Q15

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-14
File ID: Tiamo042715-116
Sampled: 04/23/15 11:40
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 20:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	240	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	200	1		SM-2320B

6/9/15

Tidewater Inc.
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Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-26-2

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-15
File ID: Tiamo042715-117
Sampled: 04/23/15 13:40
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 21:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	180	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	150	1		SM-2320B

6/9/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/21/2015 3:54:01PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-26-1

Laboratory: BC Laboratories
SDG: 1509842
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509842-16
File ID: Tiamo042715-118
Sampled: 04/23/15 14:15
Prepared: 04/27/15 07:30
Analyzed: 04/27/15 21:14
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2293
Sequence: 1506722
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	260	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	220	2	D	SM-2320B

5/9/15

LDC #: 34351B6

SDG #: 15-09842

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-1-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: ✓

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0) pH (EPA Method 150.1), TDS (EPA Method 160.1)

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.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	SW	EB = 2
VI.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VII.	Duplicate sample analysis	A	DUP #23: Cr VI OK by difference
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	D = 4+5 , D = 11+14
X.	Sample result verification	N	
XI	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
omj	~~1 TB-4-4/23/15~~	~~15-09842-01~~	~~Water~~	~~04/23/15~~
2	EB-4-4/23/15	15-09842-02	Water	04/23/15
3	MW-22-5	15-09842-03	Water	04/23/15
4	MW-22-4	15-09842-04	Water	04/23/15
5	DUP-3-2Q15	15-09842-05	Water	04/23/15
6	MW-22-3	15-09842-06	Water	04/23/15
7	MW-22-2	15-09842-07	Water	04/23/15
8	MW-22-1	15-09842-08	Water	04/23/15
9	MW-25-5	15-09842-09	Water	04/23/15
10	MW-25-4	15-09842-10	Water	04/23/15
11	MW-25-3	15-09842-11	Water	04/23/15
12	MW-25-2	15-09842-12	Water	04/23/15
13	MW-25-1	15-09842-13	Water	04/23/15
14	DUP-4-2Q15	15-09842-14	Water	04/23/15
15	MW-26-2	15-09842-15	Water	04/23/15
16	MW-26-1	15-09842-16	Water	04/23/15

LDC #: 34351B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-1-15

SDG #: 15-09842 Level III Page: 2 of 2

Laboratory: BC Laboratories, Inc. Reviewer: MG

2nd Reviewer: [illegible]

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0) pH (EPA Method 150.1), TDS (EPA Method 160.1)

	Client ID	Lab ID	Matrix	Date
17	EB-4-4/23/15DUP	15-09842-02DUP	Water	04/23/15
18	MW-22-2MS	15-09842-07MS	Water	04/23/15
19	MW-22-2MSD	15-09842-07MSD	Water	04/23/15
20	MW-22-2DUP	15-09842-07DUP	Water	04/23/15
21	MW-25-2MS	15-09842-12MS	Water	04/23/15
22	MW-25-2MSD	15-09842-12MSD	Water	04/23/15
23	MW-25-2DUP	15-09842-12DUP	Water	04/23/15
24	MW-26-2MS	15-09842-15MS	Water	04/23/15
25	MW-26-2MSD	15-09842-15MSD	Water	04/23/15
26	MW-26-2DUP	15-09842-15DUP	Water	04/23/15
27	PBW1			
28	PBW2			
29	PBW3			
30	PBW4			

Notes:

LDC #: 34351B6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer: [illegible]

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
2→16	W	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
QC 17	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
18, 19, 21, 22	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
20	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
23	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
24→26	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 34351B6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: MG
2nd reviewer: [illegible]

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:		150.1					
Parameters:		pH					
Technical holding time:		48 hr					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
2	06:15 4-23-15	18:00 4-27-15	(107.75 hr)				J/UJ/P (all det)
3	06:45 4-23-15	19:02 4-27-15	(108.28)				
4	07:25 4-23-15	19:09 4-27-15	(107.73)				
5	07:35 4-23-15	19:16 4-27-15	(107.68)				
6	08:10 4-23-15	19:22 4-27-15	(107.20)				
7	08:45 4-23-15	19:48 4-27-15	(107.05)				
8	09:20 4-23-15	20:01 4-27-15	(106.68)				
9	10:10 4-23-15	20:10 4-27-15	(106.00)				
10	10:50 4-23-15	20:17 4-27-15	(105.45)				
11	11:30 4-23-15	20:25 4-27-15	(104.92)				
12	12:20 4-23-15	20:34 4-27-15	(104.23)				
13	12:50 4-23-15	20:44 4-27-15	(103.90)				
14	11:40 4-23-15	20:54 4-27-15	(105.23)				
15	13:40 4-23-15	21:06 4-27-15	(103.43)				
16	14:15 4-23-15	21:14 4-27-15	(102.98)				
17	06:15 4-23-15	18:05 4-27-15	(107.83)				
20	08:45 4-23-15	19:55 4-27-15	(107.17)				

LDC #: 34351B6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: [illegible]

METHOD: Inorganics, EPA Method See cover

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

Sample: 2 Field Blank / Trip Blank / Rinsate (circle one) EB

Analyte	Concentration Units ( )
pH	5.14 (pH unit)
Cl	0.14 (mg/L)
NO3-N	0.023 (↓)
SO4	0.29 (↓)

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Analyte	Concentration Units ( )

LDC# 34351B6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer:

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD	
	4	5		
Total Alkalinity	150	150	0	
Bicarbonate	180	180	0	
Chloride	12	12	0	
Hexavalent Chromium	0.0012	0.0014	15	
Nitrate as N	4.2	4.2	0	
pH (pH units)	8.25	8.28	0	
Sulfate	10	10	0	
TDS	240	240	0	

V:\FIELD DUPLICATES\FD_inorganic\34351B6.WPD

Analyte	Concentration (mg/L)		RPD	
	11	14		
Total Alkalinity	210	200	5	
Bicarbonate	250	240	4	
Chloride	47	49	4	
Hexavalent Chromium	0.0019	0.0019	0	
Nitrate as N	8.2	8.0	2	
Perchlorate (ug/L)	10	11	10	
pH (pH units)	7.74	7.25	7	
Sulfate	74	76	3	
TDS	460	450	2	

V:\FIELD DUPLICATES\FD_inorganic\34351B6.WPD

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Tidewater, Inc.
199 Shell Street
Manhattan Beach, CA 90266
ATTN: Mr. David Conner

June 15, 2015

SUBJECT: NASA JPL, 2Q2015, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on May 29, 2015. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #34376:

SDG #	Fraction
15-09937, 15-10030, 15-10147	Volatiles, Metals, Wet Chemistry

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

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

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

Sincerely,

Pei Geng
Project Manager/Senior Chemist

HC

Attachment 1

90/10 (client select)

LDC #34376 (Tidewater- Manhattan Beach, CA / NASA JPL, 2Q2015)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		Metals (200.7 /200.8)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_2-N (353.2)		Cr(VI) (7196)		CLO_4 (314.0)		pH (150.1)		TDS (150.1)																			
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	15-09937	05/29/15	06/19/15	13	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0	12	0																		
A	15-09937	05/29/15	06/19/15	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0																		
B	15-10030	05/29/15	06/19/15	11	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0																		
B	15-10030	05/29/15	06/19/15	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0																		
C	15-10147	05/29/15	06/19/15	11	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0																		
Total	T/PG			38	0	35	0	35	0	35	0	35	0	35	0	35	0	35	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	318

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

L:\Tidewater\NASA JPL\34376ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 9, 2015

Parameters: Volatiles

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09937

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-5-4/24/15	1509937-01	Water	04/24/15
SB-2-4/24/15	1509937-02	Water	04/24/15
EB-5-4/24/15	1509937-03	Water	04/24/15
MW-12-5	1509937-04	Water	04/24/15
MW-12-4	1509937-05	Water	04/24/15
DUP-5-2Q15	1509937-06	Water	04/24/15
MW-12-3	1509937-07	Water	04/24/15
MW-12-2**	1509937-08**	Water	04/24/15
MW-12-1	1509937-09	Water	04/24/15
MW-19-5	1509937-10	Water	04/24/15
MW-19-4	1509937-11	Water	04/24/15
MW-19-3	1509937-12	Water	04/24/15
MW-19-2	1509937-13	Water	04/24/15
MW-19-1	1509937-14	Water	04/24/15
MW-12-5MS	1509937-04MS	Water	04/24/15
MW-12-5MSD	1509937-04MSD	Water	04/24/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

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 30.0% for all compounds.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-5-4/24/15 was identified as a trip blank. No contaminants were found.

Sample EB-5-4/24/15 was identified as an equipment blank. No contaminants were found.

Sample SB-2-4/24/15 was identified as a source blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples MW-12-4 and DUP-5-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-12-4	DUP-5-2Q15	
Carbon tetrachloride	2.0	0.38	136
Chloroform	0.96	0.47	69
Trichloroethene	0.51	0.18	96

XI. Internal Standards

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

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Volatiles - Data Qualification Summary - SDG 15-09937

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
Volatiles - Laboratory Blank Data Qualification Summary - SDG 15-09937

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-5-4/24/15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-01	File ID:	28APR13.D
Sampled:	04/24/15 06:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 10:16
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/10/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-5-4/24/15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-01	File ID:	28APR13.D
Sampled:	04/24/15 06:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 10:16
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/10/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-5-4/24/15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-01	File ID:	28APR13.D
Sampled:	04/24/15 06:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 10:16
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.020	100	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8400	98.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7800	97.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	209838	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	82112	9.72	80498	9.72	
1,4-Difluorobenzene (IS)	322863	7.52	309917	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

SB-2-4/24/15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-02	File ID:	28APR14.D
Sampled:	04/24/15 06:15	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 10:39
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

SB-2-4/24/15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-02	File ID:	28APR14.D
Sampled:	04/24/15 06:15	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 10:39
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

SB-2-4/24/15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-02	File ID:	28APR14.D
Sampled:	04/24/15 06:15	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 10:39
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence:	1506696	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9500	99.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.000	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7500	97.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	202255	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	79456	9.72	80498	9.72	
1,4-Difluorobenzene (IS)	307796	7.52	309917	7.52	

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-5-4/24/15

Laboratory:	BC Laboratories		SDG:	15-09937	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509937-03	File ID:	28APR15.D
Sampled:	04/24/15 06:25	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 11:02
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-5-4/24/15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-03	File ID:	28APR15.D
Sampled:	04/24/15 06:25	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 11:02
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-5-4/24/15

Laboratory:	BC Laboratories		SDG:	15-09937	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509937-03	File ID:	28APR15.D
Sampled:	04/24/15 06:25	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 11:02
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence: 1506696	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3400	93.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.230	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8000	98.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	212472	6.73	209169	6.73	
Chlorobenzene-d5 (IS)	81601	9.73	80498	9.72	
1,4-Difluorobenzene (IS)	313730	7.52	309917	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-5

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-04	File ID:	28APR06.D
Sampled:	04/24/15 07:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 07:36
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.33	J
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.26	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-5

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-04	File ID:	28APR06.D
Sampled:	04/24/15 07:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 07:36
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.070	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-5

Laboratory:	BC Laboratories		SDG:	15-09937	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509937-04	File ID:	28APR06.D
Sampled:	04/24/15 07:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 07:36
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence: 1506696	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.4300	94.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7600	97.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2500	92.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	209380	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	81288	9.72	80498	9.72	
1,4-Difluorobenzene (IS)	309206	7.52	309917	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-4

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-05	File ID:	28APR16.D
Sampled:	04/24/15 07:40	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 11:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	2.0	
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.96	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-4

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-05	File ID:	28APR16.D
Sampled:	04/24/15 07:40	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 11:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.51	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-4

Laboratory:	BC Laboratories		SDG:	15-09937	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509937-05	File ID:	28APR16.D
Sampled:	04/24/15 07:40	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 11:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence: 1506696	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7600	97.6	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8700	98.7	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8700	98.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208117	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	79970	9.73	80498	9.72	
1,4-Difluorobenzene (IS)	315447	7.52	309917	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

DUP-5-2Q15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-06	File ID:	28APR17.D
Sampled:	04/24/15 07:50	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 11:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence:	1506696	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.38	J
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.47	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

DUP-5-2Q15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-06	File ID:	28APR17.D
Sampled:	04/24/15 07:50	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 11:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.18	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

DUP-5-2Q15

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-06	File ID:	28APR17.D
Sampled:	04/24/15 07:50	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 11:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.370	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.030	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5300	95.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	209360	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	86331	9.73	80498	9.72	
1,4-Difluorobenzene (IS)	311707	7.52	309917	7.52	

6/10/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-3

Laboratory:	BC Laboratories		SDG:	15-09937	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509937-07	File ID:	28APR18.D
Sampled:	04/24/15 08:25	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 12:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.50	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/10/15 Ø

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-3

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-07	File ID:	28APR18.D
Sampled:	04/24/15 08:25	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 12:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence:	1506696	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.11	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.27	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-3

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-07	File ID:	28APR18.D
Sampled:	04/24/15 08:25	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 12:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9700	99.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7600	97.6	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	210111	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	80385	9.72	80498	9.72	
1,4-Difluorobenzene (IS)	317304	7.52	309917	7.52	

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-2

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-08	File ID:	28APR19.D
Sampled:	04/24/15 09:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 12:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/10/15 X

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-2

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-08	File ID:	28APR19.D
Sampled:	04/24/15 09:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 12:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-2

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-08	File ID:	28APR19.D
Sampled:	04/24/15 09:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 12:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.250	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9100	99.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7500	97.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	207235	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	81832	9.73	80498	9.72	
1,4-Difluorobenzene (IS)	321572	7.52	309917	7.52	

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-1

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-09	File ID:	28APR20.D
Sampled:	04/24/15 09:30	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 12:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/05/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-1

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-09	File ID:	28APR20.D
Sampled:	04/24/15 09:30	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 12:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence:	1506696	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	J
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-1

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-09	File ID:	28APR20.D
Sampled:	04/24/15 09:30	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 12:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence:	1506696	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.200	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7800	97.8	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5500	95.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	210891	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	83436	9.72	80498	9.72	
1,4-Difluorobenzene (IS)	317818	7.52	309917	7.52	

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-5

Laboratory:	BC Laboratories		SDG:	15-09937	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509937-10	File ID:	28APR21.D
Sampled:	04/24/15 10:25	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 13:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.24	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-19-5

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-10	File ID:	28APR21.D
Sampled:	04/24/15 10:25	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 13:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.070	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.51	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-19-5

Laboratory:	BC Laboratories		SDG:	15-09937	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509937-10	File ID:	28APR21.D
Sampled:	04/24/15 10:25	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 13:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence: 1506696	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7700	97.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9200	99.2	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7900	97.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	213084	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	80857	9.73	80498	9.72	
1,4-Difluorobenzene (IS)	316313	7.52	309917	7.52	

6/10/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-19-4

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-11	File ID:	28APR22.D
Sampled:	04/24/15 11:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 13:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.14	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-4

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-11	File ID:	28APR22.D
Sampled:	04/24/15 11:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 13:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.26	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-19-4

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-11	File ID:	28APR22.D
Sampled:	04/24/15 11:00	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 13:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5500	95.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9400	99.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8000	98.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	206109	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	80681	9.73	80498	9.72	
1,4-Difluorobenzene (IS)	303542	7.52	309917	7.52	

5/10/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-19-3

Laboratory:	BC Laboratories		SDG:	15-09937	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509937-12	File ID:	28APR23.D
Sampled:	04/24/15 11:35	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 14:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence: 1506696	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.28	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/10/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-19-3

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-12	File ID:	28APR23.D
Sampled:	04/24/15 11:35	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 14:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.45	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.11	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/10/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-3

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-12	File ID:	28APR23.D
Sampled:	04/24/15 11:35	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 14:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.220	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9200	99.2	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9900	99.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	211800	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	82352	9.73	80498	9.72	
1,4-Difluorobenzene (IS)	317074	7.52	309917	7.52	

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-2

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-13	File ID:	28APR24.D
Sampled:	04/24/15 12:05	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 14:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence:	1506696	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.37	J
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	2.1	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.080	J
541-73-1	1,3-Dichlorobenzene	1	0.18	J
106-46-7	1,4-Dichlorobenzene	1	0.070	J
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.42	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.42	J
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-2

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-13	File ID:	28APR24.D
Sampled:	04/24/15 12:05	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 14:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	2.9	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.22	J
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	3.5	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/10/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-2

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-13	File ID:	28APR24.D
Sampled:	04/24/15 12:05	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 14:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.110	101	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.420	104	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9100	99.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	211326	6.73	209169	6.73	
Chlorobenzene-d5 (IS)	80481	9.72	80498	9.72	
1,4-Difluorobenzene (IS)	299823	7.52	309917	7.52	

6/10/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-1

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-14	File ID:	28APR25.D
Sampled:	04/24/15 13:20	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 14:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.94	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/10/15 [illegible]

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-19-1

Laboratory:	BC Laboratories		SDG:	15-09937	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1509937-14	File ID:	28APR25.D
Sampled:	04/24/15 13:20	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 14:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2370	Sequence:	1506696	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

5/10/15 CY

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:40:59PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-1

Laboratory:	BC Laboratories			SDG:	15-09937
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1509937-14	File ID:	28APR25.D
Sampled:	04/24/15 13:20	Prepared:	04/28/15 07:00	Analyzed:	04/28/15 14:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2370 Sequence: 1506696 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5700	95.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9000	99.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.130	101	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	210264	6.74	209169	6.73	
Chlorobenzene-d5 (IS)	79501	9.73	80498	9.72	
1,4-Difluorobenzene (IS)	312833	7.52	309917	7.52	

6/10/15

LDC #: 34376A1

SDG #: 15-09937

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-3-15

Page: 1 of 2

Reviewer:

2nd Reviewer:

METHOD: GC/MS Volatiles (EPA Method 524.2)

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.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	≤20, r2 / ≤30
IV.	Continuing calibration	A	≤30
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1 ; ER = 3; SB = 2
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	~~N~~ A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D = 5 + 6
XI.	Internal standards	A	
XII.	Compound quantitation RL/~~LOQ/LODs~~	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	TB-5-4/24/15	1509937-01	Water	04/24/15
2	SB-2-4/24/15	1509937-02	Water	04/24/15
3	EB-5-4/24/15	1509937-03	Water	04/24/15
4	MW-12-5	1509937-04	Water	04/24/15
5	MW-12-4	1509937-05	Water	04/24/15
6	DUP-5-2Q15	1509937-06	Water	04/24/15
7	MW-12-3	1509937-07	Water	04/24/15
8	MW-12-2**	1509937-08**	Water	04/24/15
9	MW-12-1	1509937-09	Water	04/24/15
10	MW-19-5	1509937-10	Water	04/24/15
11	MW-19-4	1509937-11	Water	04/24/15
12	MW-19-3	1509937-12	Water	04/24/15
13	MW-19-2	1509937-13	Water	04/24/15

LDC #: 34376A1

SDG #: 15-09937

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-3-15

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA Method 524.2)

	Client ID	Lab ID	Matrix	Date
14	MW-19-1	1509937-14	Water	04/24/15
15	MW-12-5MS	1509937-04MS	Water	04/24/15
16	MW-12-5MSD	1509937-04MSD	Water	04/24/15
17				
18				
19				
20				
21				

Notes:

	BYD2370-BLK1						

LDC #: 34376A1

VALIDATION FINDINGS CHECKLIST

Reviewer: JM
2nd Reviewer: [illegible]

Method: Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 34376A1

VALIDATION FINDINGS CHECKLIST

Reviewer: CM
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within +/-40% from the associated calibration standard?	✓			
Were retention times within - 30% of the last continuing calibration or +/- 50% of the initial calibration?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

TARGET COMPOUND WORKSHEET

METHOD: VOA

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

LDC #: 34376A1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

Compound	Concentration (µg/L) 5	6	RPD
O	2.0	0.38	136
K	0.96	0.47	69
S	0.51	0.18	96

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 34376A1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

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

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (3rd std)	Recalculated RRF (3rd std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	1504017	04/09/15	Benzene (1st Internal Standard)	2.00574	2.00574	1.915909	1.915909	7.242641	7.242639
			Toluene (2nd Internal Standard)	0.7845816	0.7845816	0.7564958	0.7564958	12.47006	12.47006
			Styrene (3rd Internal Standard)	3.285449	3.285449	2.953568	2.953568	12.55207	12.55206
2	1504017	04/10/15	Acetone (1st Internal Standard)	4.143118e-2	4.143118e-2	4.043636e-2	4.043636e-2	5.719946	5.719937
			2-Hexanone (2nd Internal Standard)	6.539117e-2	6.539117e-2	6.147533e-2	6.147533e-2	8.80841	8.808423
			t-1,4-Dichloro-2-butene (3rdInternalStandard)	0.1519529	0.1519529	0.1397942	0.1397942	13.8276	13.8276
3			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						
4			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						

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

LDC #: 34376A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	1506d96-CCV1	04/28/15	Benzene (1st Internal Standard)	1.915909	1.817632	1.817632	5.1	5.1
			Toluene (2nd Internal Standard)	0.7564958	0.7386839	0.7386684	2.4	2.4
			Styrene (3rd Internal Standard)	2.953568	2.975683	2.975683	0.7	0.7
2	1506d96-CCV2	04/28/15	Acetone (1st Internal Standard)	$4.043636e^{-2}$	$3.309973e^{-2}$	$3.309973e^{-2}$	18.1	18.1
			2-Hexanone (2nd Internal Standard)	$6.147533e^{-2}$	$5.349325e^{-2}$	$5.349325e^{-2}$	13.0	13.0
			t-1,4-Dichloro-2-butene (3rd Internal Standard)	0.1397942	0.1516901	0.1516901	8.5	8.5
3			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					
4			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					

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

LDC #: 34376A1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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: 8

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10.000	9.9100	99.1	99.1	~~99.1~~ Ø
Bromofluorobenzene	↓	9.7500	97.5	97.5	Ø
1,2-Dichlorobenzene-d4	↓	10.250	102	102.5	Ø
Dibromofluoromethane	NA				

Sample ID:

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

Sample ID:

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

Sample ID:

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

LDC #: 34376A1

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

MS/MSD sample: 15/16

Compound	Spike Added (µg/L)		Sample Concentration (µg/L)	Spiked Sample Concentration (µg/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene	25.000	25.000	ND	25.000	24.980	100	100	99.9	99.9	0.0800	0.0800
Trichloroethene	↓	↓	ND	26.230	25.970	105	105	104	104	0.996	0.996
Benzene	↓	↓	ND	23.650	23.970	94.6	94.6	95.9	95.9	1.34	1.34
Toluene	↓	↓	ND	24.830	24.520	99.3	99.3	98.1	98.1	1.26	1.26
Chlorobenzene	↓	↓	ND	25.700	25.330	103	103	101	101	1.45	1.45

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

LDC #: 34376A1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: BYD2370-BS1

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.000	NA	25.080	NA	100	100				
Trichloroethene	↓		26.180		105	105				
Benzene			23.470		93.9	93.9				
Toluene			24.810		99.2	99.2				
Chlorobenzene			25.820		103	103				

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

LDC #: 34376A1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

Y N N/A Were all reported results recalculated and verified for all level IV samples?

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

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

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

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

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

RRF = Relative response factor of the calibration standard.

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

Df = Dilution factor.

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

Example:

Sample I.D. 15(MS) Benzene (Sample ND)

Conc. = $\frac{(908684)(10.00)(\quad)}{(200558)(1.915909)(1)(\quad)}$

= 23.64819585 ≈ 23.650 ug/L

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

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 9, 2015

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09937

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SB-2-4/24/15	1509937-02	Water	04/24/15
EB-5-4/24/15	1509937-03	Water	04/24/15
MW-12-5	1509937-04	Water	04/24/15
MW-12-4	1509937-05	Water	04/24/15
DUP-5-2Q15	1509937-06	Water	04/24/15
MW-12-3	1509937-07	Water	04/24/15
MW-12-2**	1509937-08**	Water	04/24/15
MW-12-1	1509937-09	Water	04/24/15
MW-19-5	1509937-10	Water	04/24/15
MW-19-4	1509937-11	Water	04/24/15
MW-19-3	1509937-12	Water	04/24/15
MW-19-2	1509937-13	Water	04/24/15
MW-19-1	1509937-14	Water	04/24/15
MW-12-5MS	1509937-04MS	Water	04/24/15
MW-12-5MSD	1509937-04MSD	Water	04/24/15
MW-19-3MS	1509937-12MS	Water	04/24/15
MW-19-3MSD	1509937-12MSD	Water	04/24/15
MW-12-5DUP	1509937-04DUP	Water	04/24/15
MW-19-3DUP	1509937-12DUP	Water	04/24/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium by Environmental Protection Agency (EPA) Methods 200.7 and 200.8

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reporfed concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this reporf 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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of ICS analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium Iron	1.5600 ug/L 32.503 ug/L	MW-19-3 MW-19-2 MW-19-1
ICB/CCB	Iron	41.980 ug/L	MW-19-3 MW-19-2 MW-19-1
ICB/CCB	Iron	6.9482 ug/L	SB-2-4/24/15 EB-5-4/24/15 MW-12-5 MW-12-4 DUP-5-2Q15 MW-12-3 MW-12-2** MW-12-1 MW-19-5 MW-19-4
ICB/CCB	Chromium	1.4490 ug/L	MW-19-3

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Magnesium Sodium	0.021390 mg/L 0.055527 mg/L	MW-19-3 MW-19-2 MW-19-1
ICB/CCB	Potassium Sodium	0.20905 mg/L 0.061986 mg/L	MW-19-3 MW-19-2 MW-19-1
ICB/CCB	Sodium	0.027491 mg/L	EB-5-4/24/15 MW-12-4 DUP-5-2Q15 MW-12-3 MW-12-2** MW-12-1 MW-19-5 MW-19-4

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-19-3	Chromium	3.0 ug/L	3.0U ug/L
MW-19-2	Chromium	0.77 ug/L	0.77U ug/L
MW-19-4	Iron	28 ug/L	28U ug/L

VI. Field Blanks

Sample EB-5-4/24/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-5-4/24/15	Sodium	0.16 mg/L

Sample SB-2-4/24/15 was identified as a source blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
SB-2-4/24/15	Sodium	0.17 mg/L

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

IX. ICP Serial Dilution

ICP serial dilution analysis was performed on an associated project sample. The analysis criteria were met.

X. Laboratory Control Samples (LCS)

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

Samples MW-12-4 and DUP-5-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-12-4	DUP-5-2Q15	
Arsenic	1.4	1.2	15
Calcium	61000	63000	3
Iron	54	37	37
Magnesium	16000	17000	6
Potassium	2300	2300	0
Sodium	25000	25000	0

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

XIII. Sample Result Verification

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

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to laboratory blank contamination, data were qualified as not detected in three samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Metals - Data Qualification Summary - SDG 15-09937

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
Metals - Laboratory Blank Data Qualification Summary - SDG 15-09937

Sample	Analyte	Modified Final Concentration	A or P
MW-19-3	Chromium	3.0U ug/L	A
MW-19-2	Chromium	0.77U ug/L	A
MW-19-4	Iron	28U ug/L	A

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EPA-200.7

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02
File ID: PE2_150505-079
Sampled: 04/24/15 06:15
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U	EPA-200.7

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EPA-200.7

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03
File ID: PE2_150505-082
Sampled: 04/24/15 06:25
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:32
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U	EPA-200.7

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EPA-200.7

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04
File ID: PE2_150505-073
Sampled: 04/24/15 07:00
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:11
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	100	1		EPA-200.7

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05
File ID: PE2_150505-083
Sampled: 04/24/15 07:40
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:35
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	54	1		EPA-200.7

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EPA-200.7

DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06
File ID: PE2_150505-084
Sampled: 04/24/15 07:50
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:37
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	37	1	J	EPA-200.7

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EPA-200.7

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07
File ID: PE2_150505-085
Sampled: 04/24/15 08:25
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	300	1		EPA-200.7

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EPA-200.7

MW-12-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08
File ID: PE2_150505-086
Sampled: 04/24/15 09:00
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1200	1		EPA-200.7

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EPA-200.7

MW-12-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09
File ID: PE2_150505-087
Sampled: 04/24/15 09:30
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	190	1		EPA-200.7

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EPA-200.7

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-10
File ID: PE2_150505-088
Sampled: 04/24/15 10:25
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	56	1		EPA-200.7

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EPA-200.7

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11
File ID: PE2_150505-089
Sampled: 04/24/15 11:00
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	28	1	J U	EPA-200.7

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MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12
File ID: PE2_150506-039
Sampled: 04/24/15 11:35
Prepared: 05/01/15 09:30
Analyzed: 05/06/15 15:19
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	210	1		EPA-200.7

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-19-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13
File ID: PE2_150506-040
Sampled: 04/24/15 12:05
Prepared: 05/01/15 09:30
Analyzed: 05/06/15 15:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	690	1		EPA-200.7

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EPA-200.7

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14
File ID: PE2_150506-041
Sampled: 04/24/15 13:20
Prepared: 05/01/15 09:30
Analyzed: 05/06/15 15:23
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	380	1		EPA-200.7

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EPA-200.8

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02
File ID: PE_EL2_150504-217
Sampled: 04/24/15 06:15
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

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EPA-200.8

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03
File ID: PE_EL2_150504-218
Sampled: 04/24/15 06:25
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:50
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04
File ID: PE_EL2_150504-156
Sampled: 04/24/15 07:00
Prepared: 05/04/15 08:00
Analyzed: 05/04/15 21:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.5	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.88	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05
File ID: PE_EL2_150504-219
Sampled: 04/24/15 07:40
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:53
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.4	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06
File ID: PE_EL2_150504-220
Sampled: 04/24/15 07:50
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:56
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.2	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07
File ID: PE_EL2_150504-221
Sampled: 04/24/15 08:25
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:59
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-12-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08
File ID: PE_EL2_150504-222
Sampled: 04/24/15 09:00
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 01:03
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.72	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-12-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09
File ID: PE_EL2_150504-223
Sampled: 04/24/15 09:30
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 01:06
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-10
File ID: PE_EL2_150504-224
Sampled: 04/24/15 10:25
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 01:09
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11
File ID: PE_EL2_150504-225
Sampled: 04/24/15 11:00
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 01:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0198
Sequence: 1507172
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12
File ID: PE_EL2_150504-137
Sampled: 04/24/15 11:35
Prepared: 05/04/15 08:00
Analyzed: 05/04/15 19:46
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0201
Sequence: 1507168
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	3.0	1	B U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/4/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-19-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13
File ID: PE_EL2_150504-207
Sampled: 04/24/15 12:05
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:15
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0201
Sequence: 1507168
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.77	1	JB U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.20	1	J	EPA-200.8

6/4/15

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Powell, OH 43065

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14
File ID: PE_EL2_150504-208
Sampled: 04/24/15 13:20
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0201
Sequence: 1507168
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/4/15

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Powell, OH 43065

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02
File ID: PE2_150505-079
Sampled: 04/24/15 06:15
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.018	1	U	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.17	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

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Tidewater Inc.
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Powell, OH 43065

Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: I5-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03
File ID: PE2_150505-082
Sampled: 04/24/I5 06:25
Prepared: 05/01/15 09:30
Analyzed: 05/05/I5 17:32
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.018	1	U	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	I	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.16	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04
File ID: PE2_150505-073
Sampled: 04/24/15 07:00
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:11
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	46	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	13	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	36	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.0	1		EPA-200.7

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05
File ID: PE2_150505-083
Sampled: 04/24/15 07:40
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:35
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	61	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	16	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	25	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.3	1		EPA-200.7

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06
File ID: PE2_150505-084
Sampled: 04/24/15 07:50
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:37
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	63	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	17	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	25	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.3	1		EPA-200.7

6/11/15

Tidewater Inc.
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Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07
File ID: PE2_150505-085
Sampled: 04/24/15 08:25
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	37	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	16	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	25	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08
File ID: PE2_150505-086
Sampled: 04/24/15 09:00
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	64	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	22	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	26	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.4	1		EPA-200.7

6/11/15

Tidewater Inc.
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Powell, OH 43065

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-12-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09
File ID: PE2_150505-087
Sampled: 04/24/15 09:30
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	67	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	24	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	27	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.5	1		EPA-200.7

6/11/15

Tidewater Inc.
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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-10
File ID: PE2_150505-088
Sampled: 04/24/15 10:25
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	59	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	28	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	31	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.5	1		EPA-200.7

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Tidewater Inc.
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Powell, OH 43065

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11
File ID: PE2_150505-089
Sampled: 04/24/15 11:00
Prepared: 05/01/15 09:30
Analyzed: 05/05/15 17:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0054
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	49	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	26	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	30	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.5	1		EPA-200.7

6/11/15

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12
File ID: PE2_150504-169
Sampled: 04/24/15 11:35
Prepared: 05/01/15 09:30
Analyzed: 05/04/15 20:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507290
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	79	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	30	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	32	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.7	1		EPA-200.7

6/11/15

Tidewater Inc.
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Powell, OH 43065

Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-19-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13
File ID: PE2_150504-170
Sampled: 04/24/15 12:05
Prepared: 05/01/15 09:30
Analyzed: 05/04/15 21:00
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507290
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	120	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	45	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	36	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

6/11/15

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Reported: 5/27/2015 5:41:17PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14
File ID: PE2_150504-171
Sampled: 04/24/15 13:20
Prepared: 05/01/15 09:30
Analyzed: 05/04/15 21:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0053
Sequence: 1507290
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	75	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	28	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	20	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.7	1		EPA-200.7

6/5/15

LDC #: 34376A4a

SDG #: 15-09937

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-8-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: ✓

METHOD: Metals (EPA Method 200.7/200.8)

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.	Sample receipt/Technical holding times	A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	SW	SB = 1, EB = 2
VII.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD (SDG: 15-09842)
VIII.	Duplicate sample analysis	A	DUP (↓) #18: Fe OK by di
IX.	ICP Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	SW	D = 4+5
XII.	Internal Standard (ICP-MS)	A	not reviewed for level III
XIII.	Sample Result Verification	A	Not reviewed for Level III validation.
XIV.	Overall Assessment of Data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1 1	SB-2-4/24/15	1509937-02	Water	04/24/15
2 1	EB-5-4/24/15	1509937-03	Water	04/24/15
3 1	MW-12-5	1509937-04	Water	04/24/15
4 1	MW-12-4	1509937-05	Water	04/24/15
5 1	DUP-5-2Q15	1509937-06	Water	04/24/15
6 1	MW-12-3	1509937-07	Water	04/24/15
7 1	MW-12-2**	1509937-08**	Water	04/24/15
8 1	MW-12-1	1509937-09	Water	04/24/15
9 1	MW-19-5	1509937-10	Water	04/24/15
10 1	MW-19-4	1509937-11	Water	04/24/15
11 2	MW-19-3	1509937-12	Water	04/24/15
12 2	MW-19-2	1509937-13	Water	04/24/15
13 2	MW-19-1	1509937-14	Water	04/24/15
14 1	MW-12-5MS	1509937-04MS	Water	04/24/15
15 1	MW-12-5MSD	1509937-04MSD	Water	04/24/15

LDC #: 34376A4a

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-8-15

SDG #: 15-09937

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16 2	MW-19-3MS	1509937-12MS	Water	04/24/15
17 2	MW-19-3MSD	1509937-12MSD	Water	04/24/15
18 1	#3 DUP			
19 2	#11 DUP			
20				
21 1	PBW1			
22 2	PBW2			

Notes:

LDC #: 34376A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: 4

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

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were < 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 34376A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: C

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XII. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
XIII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 34376A4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: MG
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1 → 13	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
QC 14,15,18	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
↓ 16,17,19	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
Analysis Method		
ICP	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
ICP-MS	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____

Comments: Mercury by CVAA if performed

LDC #: 34376A4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Reviewer: MG
2nd Reviewer: G

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 11-13

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	11	12								
Cr		1.5600		7.800	3.0	0.77								
Fe		32.503	41.980	209.9										

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1-10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	10									
Fe			6.9482	34.74	28									

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 11

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	11									
Cr			1.4490	7.245	see PB									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 11-13 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Mg		0.021390		0.1070										
K			0.20905	1.045										
Na		0.055527	0.061986	0.3099										

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 2,4-10 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na			0.027491	0.1375										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 34376A4a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: [illegible]

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

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

Sample: 1 Field Blank / Trip Blank / Rinsate / Other SB (circle one)

Analyte	Concentration Units ( )
Na	0.17 (mg/L)

Sample: 2 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Na	0.16 (mg/L)

LDC#: 34376A4a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

Analyte	Concentration (ug/L)		RPD	
	4	5		
Arsenic	1.4	1.2	15	
Calcium	61000	63000	3	
Iron	54	37	37	
Magnesium	16000	17000	6	
Potassium	2300	2300	0	
Sodium	25000	25000	0	

V:\FIELD DUPLICATES\FD_inorganic\34376A4a.wpd

LDC #: 34376A4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: MG
2nd Reviewer: G

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

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
1958 ICV	ICP (Initial calibration)	Fe	50260	50000	101	101	Y
1213 ICV	ICP/MS (Initial calibration)	Cr	53.022	50.00	106	106	↓
	CVAA (Initial calibration)						
1728 CCV2	ICP (Continuing calibration)	Fe	48400	50000	96.8	96.8	
0040 CCVL	ICP/MS (Continuing calibration)	As	102.512	100.00	103	103	
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

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

LDC #: 34376A4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MG
2nd Reviewer: [illegible]

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

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
1314 ICSAB	ICP interference check 1	Mg	448.7 (mg/L)	500.0 (mg/L)	89.7	89.7	Y
2059 LCS	Laboratory control sample	Cr	40.99 (µg/L)	40.00 (µg/L)	102	102	↓
1718 14	Matrix spike	Fe	(SSR-SR) 1104.7 (µg/L)	1000.0 (µg/L)	110	111	↓
2105/2108 18	Duplicate	As	1.465 (µg/L)	1.621 (µg/L)	10.1	10.1	↓
1711/1716 3	ICP serial dilution	Ca	45.93 (mg/L)	45.50 (mg/L)	0.9	0.9	↓

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

TOTCLC.4SW

LDC #: 34376A4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

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

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for # 7, Fe were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

$$\frac{(1.186\ mg/L)(0.050\ L)(1000\ \mu g/mg)}{0.050\ L} = 1186\ \mu g/L$$

#	Sample ID	Analyte	Reported Concentration (µg/L)	Calculated Concentration (µg/L)	Acceptable (Y/N)
1	7	Fe	1200	1200	Y
		Cr	0.72	0.72	↓

Note:

RECALC.4SW

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 11, 2015

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-09937

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SB-2-4/24/15	1509937-02	Water	04/24/15
EB-5-4/24/15	1509937-03	Water	04/24/15
MW-12-5	1509937-04	Water	04/24/15
MW-12-4	1509937-05	Water	04/24/15
DUP-5-2Q15	1509937-06	Water	04/24/15
MW-12-3	1509937-07	Water	04/24/15
MW-12-2**	1509937-08**	Water	04/24/15
MW-12-1	1509937-09	Water	04/24/15
MW-19-5	1509937-10	Water	04/24/15
MW-19-4	1509937-11	Water	04/24/15
MW-19-3	1509937-12	Water	04/24/15
MW-19-2	1509937-13	Water	04/24/15
MW-19-1	1509937-14	Water	04/24/15
MW-12-5MS	1509937-04MS	Water	04/24/15
MW-12-5MSD	1509937-04MSD	Water	04/24/15
MW-12-5DUP	1509937-04DUP	Water	04/24/15
MW-12-2DUP	1509937-08DUP	Water	04/24/15
MW-19-3MS	1509937-12MS	Water	04/24/15
MW-19-3MSD	1509937-12MSD	Water	04/24/15
MW-19-3DUP	1509937-12DUP	Water	04/24/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Hexavalent Chromium by EPA SW 846 Method 7196
Nitrite as Nitrogen by EPA Method 353.2
Perchlorate by EPA Method 314.0
pH by EPA Method 150.1
Total Dissolved Solids by EPA Method 160.1

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
SB-2-4/24/15	pH	110.08 hours	48 hours	J (all detects)	P
EB-5-4/24/15	pH	110.02 hours	48 hours	J (all detects)	P
MW-12-5	pH	109.52 hours	48 hours	J (all detects)	P
MW-12-4	pH	108.97 hours	48 hours	J (all detects)	P
DUP-5-2Q15	pH	108.92 hours	48 hours	J (all detects)	P
MW-12-3	pH	108.45 hours	48 hours	J (all detects)	P
MW-12-2**	pH	108.27 hours	48 hours	J (all detects)	P
MW-12-1	pH	108.00 hours	48 hours	J (all detects)	P
MW-19-5	pH	107.20 hours	48 hours	J (all detects)	P
MW-19-4	pH	106.73 hours	48 hours	J (all detects)	P
MW-19-3	pH	106.27 hours	48 hours	J (all detects)	P
MW-19-2	pH	105.87 hours	48 hours	J (all detects)	P
MW-19-1	pH	104.73 hours	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method(s). No contaminants were found in the laboratory blanks.

V. Field Blanks

Sample EB-5-4/24/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-5-4/24/15	pH Chloride Nitrate as N Sulfate	4.46 pH units 0.22 mg/L 0.025 mg/L 0.28 mg/L

Sample SB-2-4/24/15 was identified as a source blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
SB-2-4/24/15	pH Chloride Nitrate as N Sulfate	4.36 pH units 0.17 mg/L 0.024 mg/L 0.27 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples MW-12-4 and DUP-5-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-12-4	DUP-5-2Q15	
Total alkalinity	200 mg/L	200 mg/L	0
Bicarbonate	240 mg/L	240 mg/L	0
Chloride	15 mg/L	15 mg/L	0
Nitrate as N	1.3 mg/L	1.3 mg/L	0
pH	8.05 pH units	8.12 pH units	1
Perchlorate	2.5 ug/L	3.3 ug/L	28
Sulfate	32 mg/L	32 mg/L	0
Total dissolved solids	300 mg/L	310 mg/L	3

X. Sample Result Verification

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

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to technical holding time, data were qualified as estimated in thirteen samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Wet Chemistry - Data Qualification Summary - SDG 15-09937

Sample	Analyte	Flag	A or P	Reason
SB-2-4/24/15 EB-5-4/24/15 MW-12-5 MW-12-4 DUP-5-2Q15 MW-12-3 MW-12-2** MW-12-1 MW-19-5 MW-19-4 MW-19-3 MW-19-2 MW-19-1	pH	J (all detects)	P	Technical holding time

NASA JPL, 2Q2015
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 15-09937

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02
File ID: Tiamo042815-122
Sampled: 04/24/15 06:15
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.0	1	U	SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.1	1	U	SM-2320B

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03
File ID: Tiamo042815-123
Sampled: 04/24/15 06:25
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.0	1	U	SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.1	1	U	SM-2320B

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04
File ID: Tiamo042815-124
Sampled: 04/24/15 07:00
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	230	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
--	Total Alkalinity as CaCO3	190	1		SM-2320B

6/4/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05
File ID: Tiamo042815-125
Sampled: 04/24/15 07:40
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:38
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	240	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	200	1		SM-2320B

6/11/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06
File ID: Tiamo042815-126
Sampled: 04/24/15 07:50
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	240	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	200	1		SM-2320B

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Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07
File ID: Tiamo042815-127
Sampled: 04/24/15 08:25
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	190	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	160	1		SM-2320B

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-12-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08
File ID: Tiamo042815-132
Sampled: 04/24/15 09:00
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	260	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	210	1		SM-2320B

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-12-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09
File ID: Tiamo042815-134
Sampled: 04/24/15 09:30
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	260	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	220	1		SM-2320B

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Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-10
File ID: Tiamo042815-135
Sampled: 04/24/15 10:25
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	210	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
----	Total Alkalinity as CaCO3	170	1		SM-2320B

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11
File ID: Tiamo042815-136
Sampled: 04/24/15 11:00
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	200	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	160	1		SM-2320B

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12
File ID: Tiamo042815-137
Sampled: 04/24/15 11:35
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	240	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	190	1		SM-2320B

6/11/15

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-19-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13
File ID: Tiamo042815-138
Sampled: 04/24/15 12:05
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	290	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	240	2	D	SM-2320B

5/11/15

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14
File ID: Tiamo042815-139
Sampled: 04/24/15 13:20
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 22:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	310	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
----	Total Alkalinity as CaCO3	250	1		SM-2320B

6/11/15

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02
File ID: H042415B.seq-10
Sampled: 04/24/15 06:15
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 02:03
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.17	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.024	1	J	EPA-300.0
14808-79-8	Sulfate	0.27	1	J	EPA-300.0

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Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03
File ID: H042415B.seq-11
Sampled: 04/24/15 06:25
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 02:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.22	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	J	EPA-300.0
14808-79-8	Sulfate	0.28	1	J	EPA-300.0

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04
File ID: H042415B.seq-06
Sampled: 04/24/15 07:00
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 00:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	17	1		EPA-300.0
14797-55-8	Nitrate as N	1.7	1		EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05
File ID: H042415B.seq-12
Sampled: 04/24/15 07:40
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 02:38
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	15	1		EPA-300.0
14797-55-8	Nitrate as N	1.3	1		EPA-300.0
14808-79-8	Sulfate	32	1		EPA-300.0

6/11/15

Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06
File ID: H042415B.seq-13
Sampled: 04/24/15 07:50
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 02:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	15	1		EPA-300.0
14797-55-8	Nitrate as N	1.3	1		EPA-300.0
14808-79-8	Sulfate	32	1		EPA-300.0

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07
File ID: H042415B.seq-16
Sampled: 04/24/15 08:25
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 03:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	15	1		EPA-300.0
14797-55-8	Nitrate as N	0.033	1	J	EPA-300.0
14808-79-8	Sulfate	26	1		EPA-300.0

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-12-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08
File ID: H042415B.seq-17
Sampled: 04/24/15 09:00
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 04:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	23	1		EPA-300.0
14797-55-8	Nitrate as N	1.2	1		EPA-300.0
14808-79-8	Sulfate	48	1		EPA-300.0

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-12-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09
File ID: H042415B.seq-18
Sampled: 04/24/15 09:30
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 04:23
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	25	1		EPA-300.0
14797-55-8	Nitrate as N	0.47	1		EPA-300.0
14808-79-8	Sulfate	50	1		EPA-300.0

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Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-10
File ID: H042415B.seq-19
Sampled: 04/24/15 10:25
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 04:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	47	1		EPA-300.0
14797-55-8	Nitrate as N	7.2	1		EPA-300.0
14808-79-8	Sulfate	46	1		EPA-300.0

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Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11
File ID: H042415B.seq-20
Sampled: 04/24/15 11:00
Prepared: 04/24/15 23:00
Analyzed: 04/25/15 04:58
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2248
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	42	1		EPA-300.0
14797-55-8	Nitrate as N	7.5	1		EPA-300.0
14808-79-8	Sulfate	39	1		EPA-300.0

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Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12
File ID: H042415B.seq-23
Sampled: 04/24/15 11:35
Prepared: 04/24/15 23:30
Analyzed: 04/25/15 05:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2249
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	61	1		EPA-300.0
14797-55-8	Nitrate as N	11	1		EPA-300.0
14808-79-8	Sulfate	62	1		EPA-300.0

6/11/15 [illegible]

Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-19-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13
File ID: H042415B.seq-29
Sampled: 04/24/15 12:05
Prepared: 04/24/15 23:30
Analyzed: 04/25/15 07:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2249
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	100	1		EPA-300.0
14797-55-8	Nitrate as N	14	1		EPA-300.0
14808-79-8	Sulfate	140	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14
File ID: H042415B.seq-30
Sampled: 04/24/15 13:20
Prepared: 04/24/15 23:30
Analyzed: 04/25/15 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2249
Sequence: 1506920
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	35	1		EPA-300.0
14797-55-8	Nitrate as N	1.2	1		EPA-300.0
14808-79-8	Sulfate	45	1		EPA-300.0

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02
File ID: 150424 2227 NO2-009
Sampled: 04/24/15 06:15
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03
File ID: 150424 2227 NO2-010
Sampled: 04/24/15 06:25
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04
File ID: 150424 2227 NO2-005
Sampled: 04/24/15 07:00
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05
File ID: 150424 2227 NO2-011
Sampled: 04/24/15 07:40
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15

Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06
File ID: 150424 2227 NO2-012
Sampled: 04/24/15 07:50
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

5/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07
File ID: 150424 2227 NO2-015
Sampled: 04/24/15 08:25
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15 g

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-12-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08
File ID: 150424 2227 NO2-016
Sampled: 04/24/15 09:00
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-12-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09
File ID: 150424 2227 NO2-017
Sampled: 04/24/15 09:30
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-I0
File ID: 150424 2227 NO2-018
Sampled: 04/24/15 10:25
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.013	1	J	EPA-353.2

6/11/15 8

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11
File ID: 150424 2227 NO2-019
Sampled: 04/24/15 11:00
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2411
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12
File ID: 150424 2227 NO2-022
Sampled: 04/24/15 11:35
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2445
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15 J

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-19-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13
File ID: 150424 2227 NO2-028
Sampled: 04/24/15 12:05
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2445
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14
File ID: 150424 2227 NO2-029
Sampled: 04/24/15 13:20
Prepared: 04/24/15 22:27
Analyzed: 04/24/15 22:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2445
Sequence: 1506735
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.034	1	J	EPA-353.2

6/11/15 8

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02
File ID: 150424 2300 CR6-040
Sampled: 04/24/15 06:15
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15

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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03
File ID: 150424 2300 CR6-041
Sampled: 04/24/15 06:25
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

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Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04
File ID: 150424 2300 CR6-036
Sampled: 04/24/15 07:00
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00085	1	J	EPA-7196

6/11/15

Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05
File ID: 150424 2300 CR6-042
Sampled: 04/24/15 07:40
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06
File ID: 150424 2300 CR6-043
Sampled: 04/24/15 07:50
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15

Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07
File ID: 150424 2300 CR6-046
Sampled: 04/24/15 08:25
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15

Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-12-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08
File ID: 150424 2300 CR6-047
Sampled: 04/24/15 09:00
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-12-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09
File ID: 150424 2300 CR6-048
Sampled: 04/24/15 09:30
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-10
File ID: 150424 2300 CR6-049
Sampled: 04/24/15 10:25
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15 Y

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11
File ID: 150424 2300 CR6-050
Sampled: 04/24/15 11:00
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2409
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12
File ID: 150424 2300 CR6-053
Sampled: 04/24/15 11:35
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2410
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0016	1	J	EPA-7196

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-19-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13
File ID: 150424 2300 CR6-059
Sampled: 04/24/15 12:05
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2410
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14
File ID: 150424 2300 CR6-060
Sampled: 04/24/15 13:20
Prepared: 04/24/15 23:00
Analyzed: 04/24/15 23:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2410
Sequence: 1506734
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02RE1
File ID: F050515.seq-64.0000.txt
Sampled: 04/24/15 06:15
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 17:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0374
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03RE1
File ID: F050515.seq-65.0000.txt
Sampled: 04/24/15 06:25
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 17:18
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0374
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04RE1
File ID: F050515.seq-66.0000.txt
Sampled: 04/24/15 07:00
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 17:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0374
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.5	1	J	EPA-314.0

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05RE1
File ID: F050515.seq-67.0000.txt
Sampled: 04/24/15 07:40
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 17:46
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0374
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.5	1	J	EPA-314.0

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06RE1
File ID: F050515.seq-68.0000.txt
Sampled: 04/24/15 07:50
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 17:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0374
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.3	1	J	EPA-314.0

6/11/15 ✗

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07RE1
File ID: F050515.seq-69.0000.txt
Sampled: 04/24/15 08:25
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 18:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0374
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-12-2

Laboratory: BC Laboratories
SDG: I5-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08RE1
File ID: F050515.seq-70.0000.txt
Sampled: 04/24/15 09:00
Prepared: 05/05/15 01:00
Analyzed: 05/05/15 18:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0374
Sequence: I507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.9	1	J	EPA-314.0

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-12-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09RE1
File ID: F050515.seq-76.0000.txt
Sampled: 04/24/15 09:30
Prepared: 05/05/15 01:00
Analyzed: 05/06/15 00:46
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0374
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-10RE1
File ID: F050515.seq-77.0000.txt
Sampled: 04/24/15 10:25
Prepared: 05/05/15 01:00
Analyzed: 05/06/15 00:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0374
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: 1C6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.8	1	J	EPA-314.0

6/11/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11RE1
File ID: F050515.seq-78.0000.txt
Sampled: 04/24/15 11:00
Prepared: 05/05/15 01:00
Analyzed: 05/06/15 01:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0290
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.3	1	J	EPA-314.0

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12RE1
File ID: F050515.seq-79.0000.txt
Sampled: 04/24/15 11:35
Prepared: 05/05/15 01:00
Analyzed: 05/06/15 01:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0290
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.1	1		EPA-314.0

6/11/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/22/2015 12:33:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. 2015 Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-19-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13RE1
File ID: F050515.seq-81.0000.txt
Sampled: 04/24/15 12:05
Prepared: 05/05/15 01:00
Analyzed: 05/06/15 01:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0290
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	5.0	1		EPA-314.0

6/11/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14RE1
File ID: F050515.seq-83.0000.txt
Sampled: 04/24/15 13:20
Prepared: 05/05/15 01:00
Analyzed: 05/06/15 02:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0290
Sequence: 1507268
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/11/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02
File ID: Tiamo042815-122
Sampled: 04/24/15 06:15
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	4.36	1	J	EPA-150.1

5/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03
File ID: Tiamo042815-123
Sampled: 04/24/15 06:25
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
----	pH	4.46	1	J	EPA-150.1

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04
File ID: Tiamo042815-124
Sampled: 04/24/15 07:00
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.13	1	J	EPA-150.1

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05
File ID: Tiamo042815-125
Sampled: 04/24/15 07:40
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:38
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
----	pH	8.05	1	J	EPA-150.1

6/11/15 T

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06
File ID: Tiamo042815-126
Sampled: 04/24/15 07:50
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.12	1	J	EPA-150.1

6/11/15 R

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07
File ID: Tiamo042815-127
Sampled: 04/24/15 08:25
Prepared: 04/28/15 06:03
Analyzed: 04/28/15 20:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2440
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.13	1	J	EPA-150.1

6/11/15 9

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-12-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08
File ID: Tiamo042815-132
Sampled: 04/24/15 09:00
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.86	1	H	EPA-150.1

6/11/15 [illegible]

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-12-1

Laboratory: BC Laboratories
SDG: I5-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09
File ID: Tiamo0428I5-134
Sampled: 04/24/15 09:30
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.82	1	J	EPA-150.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-10
File ID: Tiamo042815-135
Sampled: 04/24/15 10:25
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.10	1	J	EPA-150.1

6/11/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11
File ID: Tiamo042815-136
Sampled: 04/24/15 11:00
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.11	1	J	EPA-150.1

6/11/15 [illegible]

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12
File ID: Tiamo042815-137
Sampled: 04/24/15 11:35
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.83	1	J	EPA-150.1

6/11/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-19-2

Laboratory: BC Laboratories
SDG: I5-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13
File ID: Tiamo042815-138
Sampled: 04/24/15 12:05
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 21:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.89	1		EPA-150.1

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14
File ID: Tiamo042815-139
Sampled: 04/24/15 13:20
Prepared: 04/28/15 06:30
Analyzed: 04/28/15 22:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2441
Sequence: 1506827
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.04	1	J	EPA-150.1

6/11/15 CY

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

SB-2-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-02
File ID:
Sampled: 04/24/15 06:15
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	6.7	0.667	UD	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

EB-5-4/24/15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-03
File ID:
Sampled: 04/24/15 06:25
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	6.7	0.667	UD	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-12-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-04
File ID:
Sampled: 04/24/15 07:00
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	300	2	D	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-12-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-05
File ID:
Sampled: 04/24/15 07:40
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	300	2	D	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

DUP-5-2Q15

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-06
File ID:
Sampled: 04/24/15 07:50
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	310	2	D	EPA-160.1

6/11/15 ✓

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-12-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-07
File ID:
Sampled: 04/24/15 08:25
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
--	Total Dissolved Solids @ 180 C	260	2	D	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-12-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-08
File ID:
Sampled: 04/24/15 09:00
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	340	2	D	EPA-160.1

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-12-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-09
File ID:
Sampled: 04/24/15 09:30
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	360	2	D	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-19-5

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-10
File ID:
Sampled: 04/24/15 10:25
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	410	2	D	EPA-160.1

6/11/15

Tidewater Inc.
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-19-4

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-11
File ID:
Sampled: 04/24/15 11:00
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2531
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	380	2	D	EPA-160.1

6/11/15 9

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-19-3

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-12
File ID:
Sampled: 04/24/15 11:35
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	500	3.33	D	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-19-2

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-13
File ID:
Sampled: 04/24/15 12:05
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	660	3.33	D	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/22/2015 12:33:26PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-19-1

Laboratory: BC Laboratories
SDG: 15-09937
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1509937-14
File ID:
Sampled: 04/24/15 13:20
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	390	2	D	EPA-160.1

6/11/15

LDC #: 34376A6

SDG #: 15-09937

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-8-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0), pH (EPA Method 150.1), TDS (EPA Method 160.1)

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.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	SW	SB=1, EB=2
VI.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD (SDG: 15-09842)
VII.	Duplicate sample analysis	A	DUP (SDG: 15-10030, ↓) (#16: CrVI OK by dif.)
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	D = 4+5
X.	Sample result verification	A	Not reviewed for Level III validation.
XI.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SB-2-4/24/15	1509937-02	Water	04/24/15
2	EB-5-4/24/15	1509937-03	Water	04/24/15
3	MW-12-5	1509937-04	Water	04/24/15
4	MW-12-4	1509937-05	Water	04/24/15
5	DUP-5-2Q15	1509937-06	Water	04/24/15
6	MW-12-3	1509937-07	Water	04/24/15
7	MW-12-2**	1509937-08**	Water	04/24/15
8	MW-12-1	1509937-09	Water	04/24/15
9	MW-19-5	1509937-10	Water	04/24/15
10	MW-19-4	1509937-11	Water	04/24/15
11	MW-19-3	1509937-12	Water	04/24/15
12	MW-19-2	1509937-13	Water	04/24/15
13	MW-19-1	1509937-14	Water	04/24/15
14	MW-12-5MS	1509937-04MS	Water	04/24/15
15	MW-12-5MSD	1509937-04MSD	Water	04/24/15
16	MW-12-5DUP	1509937-04DUP	Water	04/24/15

LDC #: 34376A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-8-15

SDG #: 15-09937 Level III/IV Page: 2 of 2

Laboratory: BC Laboratories, Inc. Reviewer: MG

2nd Reviewer:

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0), pH (EPA Method 150.1), TDS (EPA Method 160.1)

	Client ID	Lab ID	Matrix	Date
17	MW-12-2DUP	1509937-08DUP	Water	04/24/15
18	MW-19-3MS	1509937-12MS	Water	04/24/15
19	MW-19-3MSD	1509937-12MSD	Water	04/24/15
20	MW-19-3DUP	1509937-12DUP	Water	04/24/15
21				
22				
23				
24	PBW1			
25	PBW2			

Notes:

LDC #: 34376A6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer:

Method: Inorganics (EPA Method See cover)

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

LDC #: 34376A6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
X. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 34376A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer: CG

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→13	W	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
QC 14, 15	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
16	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
17	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
↓ 18→20	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 34376A6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: MG
2nd reviewer: 9

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:		150.1					
Parameters:		pH					
Technical holding time:		48 hr					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
1	06:15 4-24-15	20:20 4-28-15	(110.08 hr)				J/UJ/P (det
2	06:25 4-24-15	20:26 4-28-15	(110.02)				
3	07:00 4-24-15	20:31 4-28-15	(109.52)				
4	07:40 4-24-15	20:38 4-28-15	(108.97)				
5	07:50 4-24-15	20:45 4-28-15	(108.92)				
6	08:25 4-24-15	20:52 4-28-15	(108.45)				
7	09:00 4-24-15	21:16 4-28-15	(108.27)				
8	09:30 4-24-15	21:30 4-28-15	(108.00)				
9	10:25 4-24-15	21:37 4-28-15	(107.20)				
10	11:00 4-24-15	21:44 4-28-15	(106.73)				
11	11:35 4-24-15	21:51 4-28-15	(106.27)				
12	12:05 4-24-15	21:57 4-28-15	(105.87)				
13	13:20 4-24-15	22:04 4-28-15	(104.73)				
17	09:00 4-24-15	21:23 4-28-15	(108.38)				

LDC #: 34376A6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: ≥

METHOD: Inorganics, EPA Method see cover

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

Sample: 1 Field Blank / Trip Blank / Rinsate (circle one) SB

Analyte	Concentration Units ( )
pH	4.36 (pH units)
Cl	0.17 (mg/L)
NO_3-N	0.024 (↓)
SO_4	0.27 (↓)

Sample: 2 Field Blank / Trip Blank / Rinsate (circle one) EB

Analyte	Concentration Units ( )
pH	4.46 (pH units)
Cl	0.22 (mg/L)
NO_3-N	0.025 (↓)
SO_4	0.28 (↓)

LDC# 34376A6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: ~~~

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD	
	4	5		
Total Alkalinity	200	200	0	
Bicarbonate	240	240	0	
Chloride	15	15	0	
Nitrate as N	1.3	1.3	0	
pH (pH units)	8.05	8.12	1	
Perchlorate (ug/L)	2.5	3.3	28	
Sulfate	32	32	0	
TDS	300	310	3	

V:\FIELD DUPLICATES\FD_inorganic\34376A6.WPD

LDC #: 34376A6

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Inorganics, Method see cover

The correlation coefficient (r) for the calibration of ClO4 was recalculated. Calibration date: 4-27-15

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

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

Type of Analysis	Analyte	Standard ID	Conc. Found (units)	Area True (units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration	ClO4	Blank	-	-	r^2= 0.999317	r^2=0.997990	Y
		Standard 1	2 (µg/L)	0.0022			
		Standard 2	4 ( )	0.0038			
		Standard 3	5 ( )	0.0051			
		Standard 4	10 ( )	0.0091			
		Standard 5	20 ( )	0.0180			
		Standard 6	-	-			
		Standard 7	-	-			
Calibration verification	Cl	0313 CCV1	50.89 (mg/L)	50.0 (mg/L)	102	102	
Calibration verification	SO4	0313 CCV1	101.5 (mg/L)	100.0 (mg/L)	102	101	
Calibration verification	Cr VI	2307 CCV2	0.052 (mg/L)	0.050 (mg/L)	104	103	

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

LDC #: 34376A6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Inorganics, Method See cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	TDS	550.0 (mg/L)	586.0 (mg/L)	93.9	93.9	Y
14	Matrix spike sample	NO_2-N	(SSR-SR) 0.523 (mg/L)	0.52632 (mg/L)	99.4	99.5	↓
17	Duplicate sample	pH	7.86 (pH units)	7.86 (pH units)	0.00	0.00	↓

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

LDC #: 34376A6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: MG
2nd reviewer: [illegible]

METHOD: Inorganics, Method see cover

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for #7, TDS reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

$$TDS = \frac{(1.9091\,g - 1.8923\,g)(1000\,mg/g)}{0.050\,L} = 336.0\,mg/L$$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	7	pH	7.86 (pH units)	7.86 (pH units)	Y
		TDS	340	340	↓
		NO3-N	1.2	1.2	↓
		ClO4	1.9 (µg/L)	2.2 (µg/L)	↓
		total Alk	210	210	↓

Note: methods 353.2 and 7196 are N.D. for level IV sample

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 9, 2015

Parameters: Volatiles

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10030

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-6-4/27/15	1510030-01	Water	04/27/15
EB-6-4/27/15	1510030-02	Water	04/27/15
MW-23-5	1510030-03	Water	04/27/15
MW-23-4**	1510030-04**	Water	04/27/15
MW-23-3	1510030-05	Water	04/27/15
MW-23-2	1510030-06	Water	04/27/15
MW-23-1	1510030-07	Water	04/27/15
MW-3-5	1510030-08	Water	04/27/15
DUP-6-2Q15	1510030-09	Water	04/27/15
MW-3-4	1510030-10	Water	04/27/15
MW-3-3	1510030-11	Water	04/27/15
MW-3-2	1510030-12	Water	04/27/15
MW-3-1**	1510030-13**	Water	04/27/15
MW-23-5MS	1510030-03MS	Water	04/27/15
MW-23-5MSD	1510030-03MSD	Water	04/27/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

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 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/29/15	Bromomethane Methyl iodide	45.3 43.5	All samples in SDG 15-10030	UJ (all non-detects) UJ (all non-detects)	P

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-6-4/27/15 was identified as a trip blank. No contaminants were found.

Sample EB-6-4/27/15 was identified as an equipment blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

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

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples MW-3-5 and DUP-6-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-3-5	DUP-6-2Q15	
1,1-Dichloroethane	0.18	0.14	25
Tetrachloroethene	0.24	0.23	4

XI. Internal Standards

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

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D, data were qualified as estimated in thirteen samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (UJ) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Volatiles - Data Qualification Summary - SDG 15-10030

Sample	Compound	Flag	A or P	Reason
TB-6-4/27/15	Bromomethane	UJ (all non-detects)	P	Continuing calibration (%D)
EB-6-4/27/15	Methyl iodide	UJ (all non-detects)		
MW-23-5				
MW-23-4**				
MW-23-3				
MW-23-2				
MW-23-1				
MW-3-5				
DUP-6-2Q15				
MW-3-4				
MW-3-3				
MW-3-2				
MW-3-1**				

NASA JPL, 2Q2015
Volatiles - Laboratory Blank Data Qualification Summary - SDG 15-10030

No Sample Data Qualified in this SDG

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-6-4/27/15

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-01	File ID:	29APR20.D
Sampled:	04/27/15 06:00	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 13:03
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/4/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-6-4/27/15

Laboratory:	BC Laboratories			SDG:	15-10030
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510030-01	File ID:	29APR20.D
Sampled:	04/27/15 06:00	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 13:03
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence:	1506774	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

5/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-6-4/27/15

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-01	File ID:	29APR20.D
Sampled:	04/27/15 06:00	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 13:03
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U VT
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.170	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9900	99.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0800	90.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	207456	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	86326	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	313856	7.52	315658	7.52	

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-6-4/27/15

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-02	File ID:	29APR21.D
Sampled:	04/27/15 06:20	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 13:26
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-6-4/27/15

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-02	File ID:	29APR21.D
Sampled:	04/27/15 06:20	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 13:26
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence:	1506774	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-6-4/27/15

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-02	File ID:	29APR21.D
Sampled:	04/27/15 06:20	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 13:26
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U LS
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.240	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9600	99.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.000	100	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208506	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	83433	9.72	82377	9.73	
1,4-Difluorobenzene (IS)	327788	7.52	315658	7.52	

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Tidewater Inc.
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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-5

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-03	File ID:	29APR06.D
Sampled:	04/27/15 06:30	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 07:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U NJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-5

Laboratory:	BC Laboratories			SDG:	15-10030
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510030-03	File ID:	29APR06.D
Sampled:	04/27/15 06:30	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 07:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence:	1506774	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.11	J
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.38	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-5

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-03	File ID:	29APR06.D
Sampled:	04/27/15 06:30	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 07:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.4600	94.6	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.060	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5100	95.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	205220	6.73	209969	6.73	
Chlorobenzene-d5 (IS)	78364	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	303210	7.52	315658	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-4

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-04	File ID:	29APR22.D
Sampled:	04/27/15 07:30	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 13:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-4

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-04	File ID:	29APR22.D
Sampled:	04/27/15 07:30	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 13:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-4

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-04	File ID:	29APR22.D
Sampled:	04/27/15 07:30	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 13:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.160	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.050	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6100	96.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	214577	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	84989	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	317527	7.52	315658	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-3

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-05	File ID:	29APR23.D
Sampled:	04/27/15 08:05	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 14:11
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-23-3

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-05	File ID:	29APR23.D
Sampled:	04/27/15 08:05	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 14:11
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-3

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-05	File ID:	29APR23.D
Sampled:	04/27/15 08:05	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 14:11
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.000	100	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9400	99.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.360	104	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	215739	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	80783	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	316651	7.52	315658	7.52	

6/11/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-2

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-06	File ID:	29APR24.D
Sampled:	04/27/15 08:35	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 14:34
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.60	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.19	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-2

Laboratory:	BC Laboratories			SDG:	15-10030
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510030-06	File ID:	29APR24.D
Sampled:	04/27/15 08:35	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 14:34
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence:	1506774	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.50	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.18	J
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.7	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-2

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-06	File ID:	29APR24.D
Sampled:	04/27/15 08:35	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 14:34
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.230	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8500	98.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.170	102	80 - 120	

INTERNAL STANDARD	AREA	RT	RFF AREA	REF RT	Q
Pentafluorobenzene (IS)	208321	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	81227	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	319876	7.52	315658	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-1

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-07	File ID:	29APR25.D
Sampled:	04/27/15 09:10	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 14:57
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UT
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.76	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.20	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.22	J
156-60-5	trans-1,2-Dichloroethene	1	0.24	J
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Diehloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-1

Laboratory:	BC Laboratories			SDG:	15-10030
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510030-07	File ID:	29APR25.D
Sampled:	04/27/15 09:10	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 14:57
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.65	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	4.5	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-1

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-07	File ID:	29APR25.D
Sampled:	04/27/15 09:10	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 14:57
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U JS
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7200	97.2	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9000	99.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3500	93.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208671	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	84115	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	317476	7.52	315658	7.52	

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-5

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-08	File ID:	29APR26.D
Sampled:	04/27/15 10:00	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 15:20
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.18	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-5

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-08	File ID:	29APR26.D
Sampled:	04/27/15 10:00	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 15:20
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.24	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-5

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-08	File ID:	29APR26.D
Sampled:	04/27/15 10:00	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 15:20
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U VS
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9900	99.9	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9400	99.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5100	95.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208263	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	84385	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	315878	7.52	315658	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-6-2Q15

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-09	File ID:	29APR27.D
Sampled:	04/27/15 10:10	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 15:43
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.14	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-6-2Q15

Laboratory:	BC Laboratories			SDG:	15-10030
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510030-09	File ID:	29APR27.D
Sampled:	04/27/15 10:10	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 15:43
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-6-2Q15

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-09	File ID:	29APR27.D
Sampled:	04/27/15 10:10	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 15:43
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachlorocthane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8500	98.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.130	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5200	95.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208416	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	82921	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	311552	7.52	315658	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-4

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-10	File ID:	29APR28.D
Sampled:	04/27/15 11:00	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 16:06
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U VS
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.22	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-4

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-10	File ID:	29APR28.D
Sampled:	04/27/15 11:00	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 16:06
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.24	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-4

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-10	File ID:	29APR28.D
Sampled:	04/27/15 11:00	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 16:06
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U KT
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.350	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8600	98.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6800	96.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208741	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	82358	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	316724	7.52	315658	7.52	

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-3

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-11	File ID:	29APR29.D
Sampled:	04/27/15 11:35	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 16:28
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U VS
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.18	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-3

Laboratory:	BC Laboratories			SDG:	15-10030
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510030-11	File ID:	29APR29.D
Sampled:	04/27/15 11:35	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 16:28
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.15	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-3

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-11	File ID:	29APR29.D
Sampled:	04/27/15 11:35	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 16:28
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	8.8300	88.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9300	99.3	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6100	96.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	216719	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	83439	9.72	82377	9.73	
1,4-Difluorobenzene (IS)	312023	7.52	315658	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-2

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-12	File ID:	29APR30.D
Sampled:	04/27/15 12:10	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 16:51
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.37	J
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	2.1	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-3-2

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-12	File ID:	29APR30.D
Sampled:	04/27/15 12:10	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 16:51
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:47:50PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-2

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-12	File ID:	29APR30.D
Sampled:	04/27/15 12:10	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 16:51
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U NJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8000	98.0	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.100	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7800	97.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208402	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	81577	9.72	82377	9.73	
1,4-Difluorobenzene (IS)	308846	7.52	315658	7.52	

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

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Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-1

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-13	File ID:	29APR31.D
Sampled:	04/27/15 13:20	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 17:14
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

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ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-3-1

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-13	File ID:	29APR31.D
Sampled:	04/27/15 13:20	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 17:14
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2483 Sequence: 1506774 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-3-1

Laboratory:	BC Laboratories		SDG:	15-10030	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510030-13	File ID:	29APR31.D
Sampled:	04/27/15 13:20	Prepared:	04/29/15 07:00	Analyzed:	04/29/15 17:14
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2483	Sequence: 1506774	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.340	103	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9300	99.3	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2200	92.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	210381	6.74	209969	6.73	
Chlorobenzene-d5 (IS)	84549	9.73	82377	9.73	
1,4-Difluorobenzene (IS)	316185	7.52	315658	7.52	

6/11/15 X

LDC #: 34376B1

SDG #: 15-10030

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-3-15

Page: 1 of 2

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA Method 524.2)

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.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	≤20, r2 / ≤30
IV.	Continuing calibration	SW	≤30
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB=1 ; EB=2
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D=8+9
XI.	Internal standards	A	
XII.	Compound quantitation RL/~~LOQ/LODs~~	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	TB-6-4/27/15	1510030-01	Water	04/27/15
2	EB-6-4/27/15	1510030-02	Water	04/27/15
3	MW-23-5	1510030-03	Water	04/27/15
4	MW-23-4**	1510030-04**	Water	04/27/15
5	MW-23-3	1510030-05	Water	04/27/15
6	MW-23-2	1510030-06	Water	04/27/15
7	MW-23-1	1510030-07	Water	04/27/15
8	MW-3-5	1510030-08	Water	04/27/15
9	DUP-6-2Q15	1510030-09	Water	04/27/15
10	MW-3-4	1510030-10	Water	04/27/15
11	MW-3-3	1510030-11	Water	04/27/15
12	MW-3-2	1510030-12	Water	04/27/15
13	MW-3-1**	1510030-13**	Water	04/27/15

LDC #: 34376B1

SDG #: 15-10030

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-3-15

Reviewer:

2nd Reviewer:

METHOD: GC/MS Volatiles (EPA Method 524.2)

	Client ID	Lab ID	Matrix	Date
14	MW-23-5MS	1510030-03MS	Water	04/27/15
15	MW-23-5MSD	1510030-03MSD	Water	04/27/15
16				
17				
18				
19				
20				

Notes:

	BYD2483-BLK1						

LDC #: 34376B1

VALIDATION FINDINGS CHECKLIST

Reviewer: TM
2nd Reviewer: [illegible]

Method: Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 34376B1

VALIDATION FINDINGS CHECKLIST

Reviewer:
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within +/-40% from the associated calibration standard?	✓			
Were retention times within - 30% of the last continuing calibration or +/- 50% of the initial calibration?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

TARGET COMPOUND WORKSHEET

METHOD: VOA

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

LDC #: 34376B1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: QR
2nd Reviewer: Q

METHOD: GC/MS VOA (EPA Method 524.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	04/29/15	1506774-CCV1	B	45.3	all	J/UJ/P (WA)
	↓	1506774-CCV2	PPPP	43.5	↓	↓ ↓

LDC #: 34376B1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

Compound	Concentration (µg/L) 8	9	RPD
I	0.18	0.14	25
AA	0.24	0.23	4

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 34376B1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

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

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (3rd std)	Recalculated RRF (3rd std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	1504017	04/09/15	Benzene (1st Internal Standard)	2.00574	2.00574	1.915909	1.915909	7.242641	7.242639
			Toluene (2nd Internal Standard)	0.7845816	0.7845816	0.7564958	0.7564958	12.47006	12.47006
			Styrene (3rd Internal Standard)	3.285449	3.285449	2.953568	2.953568	12.55207	12.55206
2	1504017	04/10/15	Acetone (1st Internal Standard)	4.143118e-2	4.143118e-2	4.043636e-2	4.043636e-2	5.719946	5.719937
			2-Hexanone (2nd Internal Standard)	6.539117e-2	6.539117e-2	6.147533e-2	6.147533e-2	8.80841	8.808423
			t-1,4-Dichloro-2-butene (3rdInternalStandard)	0.1519529	0.1519529	0.1397942	0.1397942	13.8276	13.8276
3			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						
4			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						

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

LDC #: 34376B1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	1506774-	04/29/15	Benzene (1st Internal Standard)	1.915909	1.707073	1.707073	10.9	10.9
	CCV 1		Toluene (2nd Internal Standard)	0.7564958	0.7201374	0.7201374	4.8	4.8
			Styrene (3rd Internal Standard)	2.953518	3.019004	3.0190043	2.2	2.2
2	1506774-	04/29/15	Acetone (1st Internal Standard)	$4.043636e^{-2}$	$3.493998e^{-2}$	$3.493998e^{-2}$	13.6	13.6
	CCV 2		2-Hexanone (2nd Internal Standard)	$6.147533e^{-2}$	$5.424304e^{-2}$	$5.424304e^{-2}$	11.8	11.8
			t-1,4-Dichloro-2-butene (3rd Internal Standard)	0.1397942	0.143693	0.143693	2.8	2.8
3			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					
4			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					

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

LDC #: 34376B1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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: 4

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10.000	10.050	100	100.5	Ø
Bromofluorobenzene	↓	9.6100	96.1	96.1	Ø
1,2-Dichlorobenzene-d4	↓	10.160	102	102	Ø
Dibromofluoromethane	NA				

Sample ID:

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

Sample ID:

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

Sample ID:

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

LDC #: 34376B1

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

RPD = | MSC - MSC | * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD sample: 14/15

Compound	Spike Added (µg/L)		Sample Concentration (µg/L)	Spiked Sample Concentration (µg/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	-----	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene	25.000	25.000	ND	24.750	23.930	99.0	99.0	95.7	95.7	3.37	3.37
Trichloroethene	↓	↓	ND	26.110	25.640	104	104	103	103	1.82	1.82
Benzene	↓	↓	ND	23.800	23.190	95.2	95.2	92.8	92.8	2.60	2.60
Toluene	↓	↓	ND	25.390	24.350	102	102	97.4	97.4	4.18	4.18
Chlorobenzene	↓	↓	ND	25.320	25.980	101	101	104	104	2.57	2.57

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

LDC #: 34376B1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: BYD2483-BS1

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.000	NA	27.000	NA	108	108				
Trichloroethene	↓		28.360		113	113				
Benzene			26.280		105	105				
Toluene			26.800		107	107				
Chlorobenzene			28.190		113	113				

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

LDC #: 34376B1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer:
2nd reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)

Y N N/A Were all reported results recalculated and verified for all level IV samples?

Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results? (Samples ND)

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

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
RRF	=	Relative response factor of the calibration standard.
V_o	=	Volume or weight of sample pruged in milliliters (ml) or grams (g).
Df	=	Dilution factor.
%S	=	Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 14(MS), Toluene

Conc. = $\frac{(163000.2)(10.00)(1)}{(357962)(0.7564958)(1)(\ )}$

= 25.39287535 ≈ 25.390 µg/L

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

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 11, 2015

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10030

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-6-4/27/15	1510030-02	Water	04/27/15
MW-23-5	1510030-03	Water	04/27/15
MW-23-4**	1510030-04**	Water	04/27/15
MW-23-3	1510030-05	Water	04/27/15
MW-23-2	1510030-06	Water	04/27/15
MW-23-1	1510030-07	Water	04/27/15
MW-3-5	1510030-08	Water	04/27/15
DUP-6-2Q15	1510030-09	Water	04/27/15
MW-3-4	1510030-10	Water	04/27/15
MW-3-3	1510030-11	Water	04/27/15
MW-3-2	1510030-12	Water	04/27/15
MW-3-1**	1510030-13**	Water	04/27/15
MW-23-3MS	1510030-05MS	Water	04/27/15
MW-23-3MSD	1510030-05MSD	Water	04/27/15
MW-23-3DUP	1510030-05DUP	Water	04/27/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium by Environmental Protection Agency (EPA) Methods 200.7 and 200.8

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of ICS analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium Iron	1.5600 ug/L 13.153 ug/L	EB-6-4/27/15 MW-23-5 MW-23-4**
ICB/CCB	Iron	16.007 ug/L	EB-6-4/27/15 MW-23-5 MW-23-4**
ICB/CCB	Iron	6.9482 ug/L	MW-23-3 MW-23-2 MW-23-1 MW-3-5 DUP-6-2Q15 MW-3-4 MW-3-3 MW-3-2 MW-3-1**
PB (prep blank)	Sodium	0.065584 mg/L	EB-6-4/27/15 MW-23-5 MW-23-4**

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium	0.018170 mg/L	MW-23-3 MW-23-2 MW-23-1 MW-3-5 DUP-6-2Q15 MW-3-4 MW-3-3 MW-3-2 MW-3-1**

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-23-5	Iron	54 ug/L	54U ug/L
MW-23-4**	Chromium Iron	2.0 ug/L 59 ug/L	2.0U ug/L 59U ug/L
MW-23-2	Iron	24 ug/L	24U ug/L

VI. Field Blanks

Sample EB-6-4/27/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration (ug/L)
EB-6-4/27/15	Calcium Potassium Sodium	0.097 0.13 0.59

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

IX. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

X. Laboratory Control Samples (LCS)

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

Samples MW-3-5 and DUP-6-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-3-5	DUP-6-2Q15	
Arsenic	2.1	13	144
Calcium	50000	52000	4
Chromium	3.3	24	152
Iron	1800	14000	154
Magnesium	19000	19000	0
Potassium	2800	2900	4
Sodium	48000	48000	0

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

XIII. Sample Result Verification

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

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to laboratory blank contamination, data were qualified as not detected in three samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Metals - Data Qualification Summary - SDG 15-10030

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
Metals - Laboratory Blank Data Qualification Summary - SDG 15-10030

Sample	Analyte	Modified Final Concentration	A or P
MW-23-5	Iron	54U ug/L	A
MW-23-4**	Chromium Iron	2.0U ug/L 59U ug/L	A
MW-23-2	Iron	24U ug/L	A

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Powell, OH 43065

Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02
File ID: PE2_150505-108
Sampled: 04/27/15 06:20
Prepared: 05/04/15 09:00
Analyzed: 05/05/15 18:35
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0203
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U	EPA-200.7

6/11/15 Q

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03
File ID: PE2_150505-109
Sampled: 04/27/15 06:30
Prepared: 05/04/15 09:00
Analyzed: 05/05/15 18:37
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0203
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	54	1	U	EPA-200.7

6/11/15 Q

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-23-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-04
File ID: PE2_150505-110
Sampled: 04/27/15 07:30
Prepared: 05/04/15 09:00
Analyzed: 05/05/15 18:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0203
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	59	1	U	EPA-200.7

6/4/15

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05
File ID: PE2_150505-123
Sampled: 04/27/15 08:05
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:10
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	51	1		EPA-200.7

6/11/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID: PE2_150505-129
Sampled: 04/27/15 08:35
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	24	1	J U	EPA-200.7

6/11/15 Q

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07
File ID: PE2_150505-133
Sampled: 04/27/15 09:10
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:34
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	94	1		EPA-200.7

6/11/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08
File ID: PE2_150505-134
Sampled: 04/27/15 10:00
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:36
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1800	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09
File ID: PE2_150505-135
Sampled: 04/27/15 10:10
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	14000	1		EPA-200.7

6/11/15 [illegible]

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10
File ID: PE2_150505-136
Sampled: 04/27/15 11:00
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:41
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	12000	1		EPA-200.7

6/11/15 8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11
File ID: PE2_150505-137
Sampled: 04/27/15 11:35
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	740	1		EPA-200.7

6/11/15 8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID: PE2_150505-138
Sampled: 04/27/15 12:10
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:46
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	110	1		EPA-200.7

6/11/15

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13
File ID: PE2_150505-139
Sampled: 04/27/15 13:20
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:48
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	780	1		EPA-200.7

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02
File ID: PE_EL2_150504-209
Sampled: 04/27/15 06:20
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0201
Sequence: 1507168
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15 [illegible]

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03
File ID: PE_EL2_150504-210
Sampled: 04/27/15 06:30
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0201
Sequence: 1507168
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	3.4	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.30	1	J	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-04
File ID: PE_EL2_150504-211
Sampled: 04/27/15 07:30
Prepared: 05/04/15 08:00
Analyzed: 05/05/15 00:28
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0201
Sequence: 1507168
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.6	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	2.0	1	JB U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.14	1	J	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05
File ID: PE_EL2_150505-103
Sampled: 04/27/15 08:05
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 17:17
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0342
Sequence: 1507274
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.82	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	3.4	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID: PE_EL2_150505-104
Sampled: 04/27/15 08:35
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 17:20
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0342
Sequence: 1507274
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.3	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07
File ID: PE_EL2_150505-105
Sampled: 04/27/15 09:10
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 17:24
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0342
Sequence: 1507274
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.3	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08
File ID: PE_EL2_150505-106
Sampled: 04/27/15 10:00
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 17:27
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0342
Sequence: 1507274
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.1	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	3.3	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09
File ID: PE_EL2_150505-107
Sampled: 04/27/15 10:10
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 17:30
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0342
Sequence: 1507274
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	13	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	24	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10
File ID: PE_EL2_150505-108
Sampled: 04/27/15 11:00
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 17:33
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0342
Sequence: 1507274
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	8.1	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	10	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11
File ID: PE_EL2_150505-109
Sampled: 04/27/15 11:35
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 17:36
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0342
Sequence: 1507274
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.4	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	2.3	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID: PE_EL2_150505-110
Sampled: 04/27/15 12:10
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 17:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0342
Sequence: 1507274
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.60	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13
File ID: PE_EL2_150505-111
Sampled: 04/27/15 13:20
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 17:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0342
Sequence: 1507274
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02
File ID: PE2_150505-108
Sampled: 04/27/15 06:20
Prepared: 05/04/15 09:00
Analyzed: 05/05/15 18:35
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0203
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.097	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.59	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	0.13	1	J	EPA-200.7

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03
File ID: PE2_150505-109
Sampled: 04/27/15 06:30
Prepared: 05/04/15 09:00
Analyzed: 05/05/15 18:37
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0203
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	4.1	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.27	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	81	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.7	1		EPA-200.7

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-23-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-04
File ID: PE2_150505-110
Sampled: 04/27/15 07:30
Prepared: 05/04/15 09:00
Analyzed: 05/05/15 18:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0203
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	31	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	13	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	29	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.8	1		EPA-200.7

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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05
File ID: PE2_150505-123
Sampled: 04/27/15 08:05
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:10
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	53	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	19	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	32	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.0	1		EPA-200.7

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Tidewater Inc.
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Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID: PE2_150505-129
Sampled: 04/27/15 08:35
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	140	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	55	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	40	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: IPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07
File ID: PE2_150505-133
Sampled: 04/27/15 09:10
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:34
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	150	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	57	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08
File ID: PE2_150505-134
Sampled: 04/27/15 10:00
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:36
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	50	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	19	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	48	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09
File ID: PE2_150505-135
Sampled: 04/27/15 10:10
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	52	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	19	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	48	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10
File ID: PE2_150505-136
Sampled: 04/27/15 11:00
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:41
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	56	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	19	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	49	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

6/11/15 [illegible]

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11
File ID: PE2_150505-137
Sampled: 04/27/15 11:35
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	53	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	18	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	46	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

6/11/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID: PE2_150505-138
Sampled: 04/27/15 12:10
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:46
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	67	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	24	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	23	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:57:14PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13
File ID: PE2_150505-139
Sampled: 04/27/15 13:20
Prepared: 05/05/15 08:30
Analyzed: 05/05/15 19:48
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0332
Sequence: 1507303
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	87	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	31	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	29	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.8	1		EPA-200.7

6/11/15 R

LDC #: 34376B4a

SDG #: 15-10030

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-9-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

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.	Sample receipt/Technical holding times	A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	SW	EB=1
VII.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD (SDG: 15-09937)
VIII.	Duplicate sample analysis	A	DUP (↓) #15: Fe ON by dif.
IX.	ICP Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	SW	D= 7+8
XII.	Internal Standard (ICP-MS)	A	not reviewed for level III
XIII.	Sample Result Verification	A	Not reviewed for Level III validation.
XIV.	Overall Assessment of Data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	X	Client ID	Lab ID	Matrix	Date
1	1	EB-6-4/27/15	1510030-02	Water	04/27/15
2	1	MW-23-5	1510030-03	Water	04/27/15
3	1/2	MW-23-4**	1510030-04**	Water	04/27/15
4	2	MW-23-3	1510030-05	Water	04/27/15
5	2	MW-23-2	1510030-06	Water	04/27/15
6	2	MW-23-1	1510030-07	Water	04/27/15
7	2	MW-3-5	1510030-08	Water	04/27/15
8	2	DUP-6-2Q15	1510030-09	Water	04/27/15
9	2	MW-3-4	1510030-10	Water	04/27/15
10	2	MW-3-3	1510030-11	Water	04/27/15
11	2	MW-3-2	1510030-12	Water	04/27/15
12	2	MW-3-1**	1510030-13**	Water	04/27/15
13	2	MW-23-3MS	1510030-05MS	Water	04/27/15
14	2	MW-23-3MSD	1510030-05MSD	Water	04/27/15
15	2	MW-23-3DUP	1510030-05DUP	Water	04/27/15

LDC #: 34376B4a

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-9-15

SDG #: 15-10030

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16				
17				
18				
19 1	PBW1			
20 2	PBW2			

Notes:

LDC #: 34376B4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

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

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were < 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 34376B4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: CY

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XII. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
XIII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 34376B4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: MG
2nd reviewer: ✓

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1→12	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
QC 13→15	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
Analysis Method		
ICP	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
ICP-MS	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-

Comments: Mercury by CVAA if performed

LDC #: 34376B4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Reviewer: MG
2nd Reviewer: [illegible]

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1-3

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	2	3								
Cr		1.5600		7.800		2.0								
Fe		13.153	16.007	80.04	54	59								

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 4-12

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	5									
Fe			6.9482	34.74	24									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1-3 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na		0.065584		0.3279										

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 4-12 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (m/L)	Action Limit	No Qual's.									
Na		0.018170		0.0908										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 34376B4a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: ~~[illegible]~~

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

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

Sample: 1 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Ca	0.097 (mg/L)
K	0.13 (↓)
Na	0.59 (↓)

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Analyte	Concentration Units ( )

LDC#: 34376B4a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: ~~X~~

METHOD: Metals (EPA Method 200.7/200.8)

Analyte	Concentration (ug/L)		RPD	
	7	8		
Arsenic	2.1	13	144	
Calcium	50000	52000	4	
Chromium	3.3	24	152	
Iron	1800	14000	154	
Magnesium	19000	19000	0	
Potassium	2800	2900	4	
Sodium	48000	48000	0	

V:\FIELD DUPLICATES\FD_inorganic\34376B4a.wpd

LDC #: 34376 B4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: MG
2nd Reviewer: Q

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

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
1258 ICV	ICP (Initial calibration)	Na	50450	50000	101	101	Y
1021 ICV	ICP/MS (Initial calibration)	As	124.666	125.00	99.7	99.7	↓
	CVAA (Initial calibration)						
1927 CCV7	ICP (Continuing calibration)	Mg	51920	50000	104	104	
1710 CCV8	ICP/MS (Continuing calibration)	Cr	40.616	40,000	102	102	
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

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

LDC #: 34376B4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MG
2nd Reviewer: ✓

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

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
1851 ICSAB	ICP interference check	Ca	476.0 (mg/L)	500.0 (mg/L)	95.2	95.2	Y
1758 LCS	Laboratory control sample	Fe	1148 (µg/L)	1000.0 (µg/L)	115	115	↓
1956 MW-19-3 MS	Matrix spike	Pb	(SSR-SR) 91.24 (µg/L)	100.00 (µg/L)	91.2	91.2	↓
1910 / 1913 15	Duplicate	K	1.988 (mg/L)	2.035 (mg/L)	2.34	2.32	↓
1910 / 1915 4	ICP serial dilution	Na	32.33 (mg/L)	32.56 (mg/L)	0.7	0.7	↓

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

LDC #: 34376B4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MG
2nd reviewer: ✗

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

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for #3, As were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)}$

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

$$\frac{(1.551\ \mu g/L)(0.050\ L)}{0.050\ L} = 1.551\ \mu g/L$$

#	Sample ID	Analyte	Reported Concentration (µg/L)	Calculated Concentration (µg/L)	Acceptable (Y/N)
1	3	As	1.6	1.6	Y
2	12	Ca	87 (mg/L)	87 (mg/L)	↓

Note:

RECALC.4SW

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 15, 2015

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10030

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-6-4/27/15	1510030-02	Water	04/27/15
MW-23-5	1510030-03	Water	04/27/15
MW-23-4**	1510030-04**	Water	04/27/15
MW-23-3	1510030-05	Water	04/27/15
MW-23-2	1510030-06	Water	04/27/15
MW-23-1	1510030-07	Water	04/27/15
MW-3-5	1510030-08	Water	04/27/15
DUP-6-2Q15	1510030-09	Water	04/27/15
MW-3-4	1510030-10	Water	04/27/15
MW-3-3	1510030-11	Water	04/27/15
MW-3-2	1510030-12	Water	04/27/15
MW-3-1**	1510030-13**	Water	04/27/15
EB-6-4/27/15MS	1510030-02MS	Water	04/27/15
EB-6-4/27/15MSD	1510030-02MSD	Water	04/27/15
EB-6-4/27/15DUP	1510030-02DUP	Water	04/27/15
MW-23-5MS	1510030-03MS	Water	04/27/15
MW-23-5MSD	1510030-03MSD	Water	04/27/15
MW-23-5DUP	1510030-03DUP	Water	04/27/15
MW-23-4MS	1510030-04MS	Water	04/27/15
MW-23-4MSD	1510030-04MSD	Water	04/27/15
MW-23-4DUP	1510030-04DUP	Water	04/27/15
MW-23-3DUP	1510030-05DUP	Water	04/27/15
MW-23-1DUP	1510030-07DUP	Water	04/27/15
MW-3-2MS	1510030-12MS	Water	04/27/15
MW-3-2MSD	1510030-12MSD	Water	04/27/15
MW-3-2DUP	1510030-12DUP	Water	04/27/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Hexavalent Chromium by EPA SW 846 Method 7196
Nitrite as Nitrogen by EPA Method 353.2
Perchlorate by EPA Method 314.0
pH by EPA Method 150.1
Total Dissolved Solids by EPA Method 160.1

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB-6-4/27/15	pH	52.02 hours	48 hours	J (all detects)	P
MW-23-5	pH	51.93 hours	48 hours	J (all detects)	P
MW-23-4**	pH	52.92 hours	48 hours	J (all detects)	P
MW-23-3	pH	50.78 hours	48 hours	J (all detects)	P
MW-23-2	pH	50.52 hours	48 hours	J (all detects)	P
MW-23-1	pH	50.03 hours	48 hours	J (all detects)	P
MW-3-5	pH	49.32 hours	48 hours	J (all detects)	P
DUP-6-2Q15	pH	49.27 hours	48 hours	J (all detects)	P
MW-3-4	pH	48.55 hours	48 hours	J (all detects)	P
MW-3-3	pH	48.08 hours	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method(s). No contaminants were found in the laboratory blanks.

V. Field Blanks

Sample EB-6-4/27/15 was identified as an equipment blank. No contaminants were

found with the following exceptions:

Blank ID	Analyte	Concentration
EB-6-4/27/15	pH Chloride Nitrate as N Sulfate	5.34 pH units 0.21 mg/L 0.028 mg/L 0.27 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples MW-3-5 and DUP-6-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-3-5	DUP-6-2Q15	
Total Alkalinity	180 mg/L	180 mg/L	0
Bicarbonate	220 mg/L	220 mg/L	0
Chloride	46 mg/L	46 mg/L	0
Nitrate as N	1.2 mg/L	1.2 mg/L	0
Nitrite as N	0.043 mg/L	0.039 mg/L	10
pH	8.01 pH units	8.02 pH units	0
Sulfate	33 mg/L	32 mg/L	3

Analyte	Concentration		RPD
	MW-3-5	DUP-6-2Q15	
Total dissolved solids	360 mg/L	350 mg/L	3

X. Sample Result Verification

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

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to technical holding time, data were qualified as estimated in ten samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Wet Chemistry - Data Qualification Summary - SDG 15-10030

Sample	Analyte	Flag	A or P	Reason
EB-6-4/27/15 MW-23-5 MW-23-4** MW-23-3 MW-23-2 MW-23-1 MW-3-5 DUP-6-2Q15 MW-3-4 MW-3-3	pH	J (all detects)	P	Technical holding time

NASA JPL, 2Q2015
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 15-10030

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02
File ID: Tiamo042915-029
Sampled: 04/27/15 06:20
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 10:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.34	1	J	EPA-150.1

6/15/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03
File ID: Tiamo042915-030
Sampled: 04/27/15 06:30
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 10:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.57	1	J	EPA-150.1

6/5/15 T

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Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-23-4

Laboratory: BC Laboratories
SDG: 15-I0030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-04
File ID: Tiamo042915-021
Sampled: 04/27/15 07:30
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 12:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2502
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.18	1	J	EPA-150.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05
File ID: Tiamo042915-006
Sampled: 04/27/15 08:05
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 10:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.87	1	J	EPA-150.1

6/15/15

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3761 Attucks Drive
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID: Tiamo042915-008
Sampled: 04/27/15 08:35
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
----	pH	7.78	1	J	EPA-150.1

6/15/15 T

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07
File ID: Tiamo042915-009
Sampled: 04/27/15 09:10
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:12
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.51	1	J	EPA-150.1

6/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08
File ID: Tiamo042915-010
Sampled: 04/27/15 10:00
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
----	pH	8.01	1	J	EPA-150.1

6/15/15 Y

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09
File ID: Tiamo042915-011
Sampled: 04/27/15 10:10
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.02	1	J	EPA-150.1

6/15/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10
File ID: Tiamo042915-012
Sampled: 04/27/15 11:00
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.89	1	J	EPA-150.1

6/15/15

Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11
File ID: Tiamo042915-013
Sampled: 04/27/15 11:35
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.82	1	J	EPA-150.1

6/15/15

Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID: Tiamo042915-014
Sampled: 04/27/15 12:10
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.94	1		EPA-150.1

6/15/15 8

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13
File ID: Tiamo042915-015
Sampled: 04/27/15 13:20
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.93	1		EPA-150.1

6/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02
File ID:
Sampled: 04/27/15 06:20
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	6.7	0.667	UD	EPA-160.1

6/15/15 8

Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03
File ID:
Sampled: 04/27/15 06:30
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	260	2	D	EPA-160.1

6/15/15 8

Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-23-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-04
File ID:
Sampled: 04/27/15 07:30
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	230	2	D	EPA-160.1

6/15/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05
File ID:
Sampled: 04/27/15 08:05
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	350	2	D	EPA-160.1

6/15/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID:
Sampled: 04/27/15 08:35
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	780	5	D	EPA-160.1

6/15/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07
File ID:
Sampled: 04/27/15 09:10
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	820	5	D	EPA-160.1

6/15/15 8

BC Laboratories, Inc.
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3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08
File ID:
Sampled: 04/27/15 10:00
Prepared: 04/29/15 13:30
Analyzed: 04/29/15 13:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2532
Sequence: 1507053
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	360	2	D	EPA-160.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09
File ID:
Sampled: 04/27/15 10:10
Prepared: 04/30/15 11:00
Analyzed: 04/30/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2635
Sequence: 1507057
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	350	2	D	EPA-160.1

6/15/15 x

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10
File ID:
Sampled: 04/27/15 11:00
Prepared: 04/30/15 11:00
Analyzed: 04/30/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2635
Sequence: 1507057
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	360	2	D	EPA-160.1

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Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11
File ID:
Sampled: 04/27/15 11:35
Prepared: 04/30/15 11:00
Analyzed: 04/30/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2635
Sequence: 1507057
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	360	2	D	EPA-160.1

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID:
Sampled: 04/27/15 12:10
Prepared: 04/30/15 11:00
Analyzed: 04/30/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2635
Sequence: 1507057
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	340	2	D	EPA-160.1

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13
File ID:
Sampled: 04/27/15 13:20
Prepared: 04/30/15 11:00
Analyzed: 04/30/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2635
Sequence: 1507057
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	420	2	D	EPA-160.1

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02
File ID: B042815.seq-06
Sampled: 04/27/15 06:20
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 01:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.21	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.028	1	J	EPA-300.0
14808-79-8	Sulfate	0.27	1	J	EPA-300.0

6/15/15

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Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03
File ID: B042815.seq-10
Sampled: 04/27/15 06:30
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 03:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.1	1		EPA-300.0
14797-55-8	Nitrate as N	0.051	1	J	EPA-300.0
14808-79-8	Sulfate	1.1	1		EPA-300.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-23-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-04
File ID: B042815.seq-11
Sampled: 04/27/15 07:30
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 03:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	10	1		EPA-300.0
14797-55-8	Nitrate as N	3.2	1		EPA-300.0
14808-79-8	Sulfate	9.5	1		EPA-300.0

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05
File ID: B042815.seq-12
Sampled: 04/27/15 08:05
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 03:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	40	1		EPA-300.0
14797-55-8	Nitrate as N	10	1		EPA-300.0
14808-79-8	Sulfate	30	1		EPA-300.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID: B042815.seq-13
Sampled: 04/27/15 08:35
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 04:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	110	1		EPA-300.0
14797-55-8	Nitrate as N	13	1		EPA-300.0
14808-79-8	Sulfate	170	1		EPA-300.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07
File ID: B042815.seq-16
Sampled: 04/27/15 09:10
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 04:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	130	1		EPA-300.0
14797-55-8	Nitrate as N	14	1		EPA-300.0
14808-79-8	Sulfate	200	1		EPA-300.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08
File ID: B042815.seq-17
Sampled: 04/27/15 10:00
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 05:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	46	1		EPA-300.0
14797-55-8	Nitrate as N	1.2	1		EPA-300.0
14808-79-8	Sulfate	33	1		EPA-300.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09
File ID: B042815.seq-18
Sampled: 04/27/15 10:10
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 05:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	46	1		EPA-300.0
14797-55-8	Nitrate as N	1.2	1		EPA-300.0
14808-79-8	Sulfate	32	1		EPA-300.0

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Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10
File ID: B042815.seq-19
Sampled: 04/27/15 11:00
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 05:46
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	45	1		EPA-300.0
14797-55-8	Nitrate as N	2.6	1		EPA-300.0
14808-79-8	Sulfate	35	1		EPA-300.0

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Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11
File ID: B042815.seq-20
Sampled: 04/27/15 11:35
Prepared: 04/27/15 23:30
Analyzed: 04/28/15 06:03
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2399
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	45	1		EPA-300.0
14797-55-8	Nitrate as N	2.8	1		EPA-300.0
14808-79-8	Sulfate	34	1		EPA-300.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID: B042815.seq-23
Sampled: 04/27/15 12:10
Prepared: 04/28/15 01:00
Analyzed: 04/28/15 06:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2400
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	35	1		EPA-300.0
14797-55-8	Nitrate as N	0.85	1		EPA-300.0
14808-79-8	Sulfate	33	1		EPA-300.0

6/15/15

Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13
File ID: B042815.seq-29
Sampled: 04/27/15 13:20
Prepared: 04/28/15 01:00
Analyzed: 04/28/15 08:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2400
Sequence: 1507062
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	23	1		EPA-300.0
14797-55-8	Nitrate as N	0.30	1		EPA-300.0
14808-79-8	Sulfate	83	1		EPA-300.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02RE1
File ID: F050715.seq-55.0000.txt
Sampled: 04/27/15 06:20
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 06:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0773
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03RE1
File ID: F050715.seq-56.0000.txt
Sampled: 04/27/15 06:30
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 06:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0773
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-23-4

Laboratory: BC Laboratories
SDG: 15-I0030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: I510030-04REI
File ID: F050715.seq-41.0000.txt
Sampled: 04/27/15 07:30
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 03:29
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05RE1
File ID: F050715.seq-45.0000.txt
Sampled: 04/27/15 08:05
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 04:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.2	1	J	EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID: F050715.seq-13.0000.txt
Sampled: 04/27/15 08:35
Prepared: 05/07/15 13:00
Analyzed: 05/07/15 15:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.8	1	J	EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07RE1
File ID: F050715.seq-46.0000.txt
Sampled: 04/27/15 09:10
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 04:38
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.9	1	J	EPA-314.0

6/15/15 [illegible]

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08RE1
File ID: F050715.seq-47.0000.txt
Sampled: 04/27/15 10:00
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 04:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/15/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09RE1
File ID: F050715.seq-48.0000.txt
Sampled: 04/27/15 10:10
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 05:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/15/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10RE1
File ID: F050715.seq-49.0000.txt
Sampled: 04/27/15 11:00
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 05:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11RE1
File ID: F050715.seq-50.0000.txt
Sampled: 04/27/15 11:35
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 05:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID: F050715.seq-21.0000.txt
Sampled: 04/27/15 12:10
Prepared: 05/07/15 13:00
Analyzed: 05/07/15 17:46
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	33	2	D	EPA-314.0

6/15/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13RE1
File ID: F050715.seq-54.0000.txt
Sampled: 04/27/15 13:20
Prepared: 05/07/15 13:00
Analyzed: 05/08/15 06:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0770
Sequence: 1507585
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/15/15 [illegible]

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02
File ID: 150428 0747 NO2-039
Sampled: 04/27/15 06:20
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 08:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 Q

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03
File ID: 150428 0747 NO2-059
Sampled: 04/27/15 06:30
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 08:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15

Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-23-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-04
File ID: 150428 0747 NO2-040
Sampled: 04/27/15 07:30
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 08:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15

Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05
File ID: 150428 0747 NO2-041
Sampled: 04/27/15 08:05
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 08:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID: 150428 0747 NO2-042
Sampled: 04/27/15 08:35
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 08:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 J

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07
File ID: 150428 0747 NO2-015
Sampled: 04/27/15 09:10
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 [illegible]

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08
File ID: 150428 0747 NO2-016
Sampled: 04/27/15 10:00
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.043	1	J	EPA-353.2

6/15/15 8

Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09
File ID: 150428 0747 NO2-017
Sampled: 04/27/15 10:10
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.039	1	J	EPA-353.2

6/15/15

Tidewater Inc.
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10
File ID: 150428 0747 NO2-018
Sampled: 04/27/15 11:00
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 9

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11
File ID: 150428 0747 NO2-019
Sampled: 04/27/15 11:35
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2470
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID: 150428 0747 NO2-022
Sampled: 04/27/15 12:10
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2471
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13
File ID: 150428 0747 NO2-028
Sampled: 04/27/15 13:20
Prepared: 04/28/15 07:47
Analyzed: 04/28/15 07:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2471
Sequence: 1506923
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02
File ID: 150428 0244 CR6-005
Sampled: 04/27/15 06:20
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

4/15/15 8

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03
File ID: 150428 0244 CR6-009
Sampled: 04/27/15 06:30
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15 8

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Tidewater Inc.
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Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-23-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-04
File ID: 150428 0244 CR6-010
Sampled: 04/27/15 07:30
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0015	1	J	EPA-7196

6/15/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05
File ID: 150428 0244 CR6-037
Sampled: 04/27/15 08:05
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 03:08
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0018	1	J	EPA-7196

6/15/15 R

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID: 150428 0244 CR6-012
Sampled: 04/27/15 08:35
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15 X

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07
File ID: 150428 0244 CR6-015
Sampled: 04/27/15 09:10
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08
File ID: 150428 0244 CR6-016
Sampled: 04/27/15 10:00
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15 8

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09
File ID: 150428 0244 CR6-017
Sampled: 04/27/15 10:10
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10
File ID: 150428 0244 CR6-018
Sampled: 04/27/15 11:00
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11
File ID: 150428 0244 CR6-019
Sampled: 04/27/15 11:35
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2413
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID: J50428 0244 CR6-022
Sampled: 04/27/15 12:10
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2414
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13
File ID: 150428 0244 CR6-028
Sampled: 04/27/15 13:20
Prepared: 04/28/15 02:44
Analyzed: 04/28/15 02:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2414
Sequence: 1506939
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

EB-6-4/27/15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-02
File ID: Tiamo042915-029
Sampled: 04/27/15 06:20
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 10:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.0	1	U	SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.1	1	U	SM-2320B

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-23-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-03
File ID: Tiamo042915-030
Sampled: 04/27/15 06:30
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 10:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2500
Sequence: 1506810
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	120	1		SM-2320B
3812-32-6	Carbonate	39	1		SM-2320B
---	Total Alkalinity as CaCO3	160	1		SM-2320B

5/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-23-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-04
File ID: Tiamo042915-021
Sampled: 04/27/15 07:30
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 12:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2502
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	180	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	150	1		SM-2320B

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-23-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-05
File ID: Tiamo042915-006
Sampled: 04/27/15 08:05
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 10:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	170	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	140	1		SM-2320B

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-23-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-06
File ID: Tiamo042915-008
Sampled: 04/27/15 08:35
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	290	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	240	2	D	SM-2320B

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-23-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-07
File ID: Tiamo042915-009
Sampled: 04/27/15 09:10
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:12
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	270	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	220	2	D	SM-2320B

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-3-5

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-08
File ID: Tiamo042915-010
Sampled: 04/27/15 10:00
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	220	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
----	Total Alkalinity as CaCO3	180	1		SM-2320B

6/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

DUP-6-2Q15

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-09
File ID: Tiamo0429I5-011
Sampled: 04/27/15 10:10
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD250I
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	220	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	180	1		SM-2320B

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SIIEET

SM-2320B

MW-3-4

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-10
File ID: Tiamo042915-012
Sampled: 04/27/15 11:00
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	220	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	180	1		SM-2320B

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-3-3

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-11
File ID: Tiamo042915-013
Sampled: 04/27/15 11:35
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	220	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	180	1		SM-2320B

5/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-3-2

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-12
File ID: Tiamo042915-014
Sampled: 04/27/15 12:10
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	250	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	200	1		SM-2320B

6/15/15

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Reported: 5/27/2015 6:06:34PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-3-1

Laboratory: BC Laboratories
SDG: 15-10030
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510030-13
File ID: Tiamo042915-015
Sampled: 04/27/15 13:20
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 11:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2501
Sequence: 1506829
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	320	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	260	1		SM-2320B

6/15/15

LDC #: 34376B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-10-15

SDG #: 15-10030 Level III/IV Page: 1 of 2

Laboratory: BC Laboratories, Inc. Reviewer: MG

2nd Reviewer: 4

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0), pH (EPA Method 150.1), TDS (EPA Method 160.1)

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.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	SW	EB = 1
VI.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VII.	Duplicate sample analysis	A	DUP (SDG: 15-09718)
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	D = 7+8
X.	Sample result verification	A	Not reviewed for Level III validation.
XI.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	EB-6-4/27/15	1510030-02	Water	04/27/15
2	MW-23-5	1510030-03	Water	04/27/15
3	MW-23-4**	1510030-04**	Water	04/27/15
4	MW-23-3	1510030-05	Water	04/27/15
5	MW-23-2	1510030-06	Water	04/27/15
6	MW-23-1	1510030-07	Water	04/27/15
7	MW-3-5	1510030-08	Water	04/27/15
8	DUP-6-2Q15	1510030-09	Water	04/27/15
9	MW-3-4	1510030-10	Water	04/27/15
10	MW-3-3	1510030-11	Water	04/27/15
11	MW-3-2	1510030-12	Water	04/27/15
12	MW-3-1**	1510030-13**	Water	04/27/15
13	EB-6-4/27/15MS	1510030-02MS	Water	04/27/15
14	EB-6-4/27/15MSD	1510030-02MSD	Water	04/27/15
15	EB-6-4/27/15DUP	1510030-02DUP	Water	04/27/15
16	MW-23-5MS	1510030-03MS	Water	04/27/15

LDC #: 34376B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-10-15
SDG #: 15-10030 Level III/IV Page: 2 of 2
Laboratory: BC Laboratories, Inc. Reviewer: MG
2nd Reviewer: d

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0), pH (EPA Method 150.1), TDS (EPA Method 160.1)

	Client ID	Lab ID	Matrix	Date
17	MW-23-5MSD	1510030-03MSD	Water	04/27/15
18	MW-23-5DUP	1510030-03DUP	Water	04/27/15
19	MW-23-4MS	1510030-04MS	Water	04/27/15
20	MW-23-4MSD	1510030-04MSD	Water	04/27/15
21	MW-23-4DUP	1510030-04DUP	Water	04/27/15
22	MW-23-3DUP	1510030-05DUP	Water	04/27/15
23	MW-23-1DUP	1510030-07DUP	Water	04/27/15
24	MW-3-2MS	1510030-12MS	Water	04/27/15
25	MW-3-2MSD	1510030-12MSD	Water	04/27/15
26	MW-3-2DUP	1510030-12DUP	Water	04/27/15
27				
28				
29	PBW 1			
30	PBW2			
31	PBW3			

Notes:

LDC #: 34376B6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

Method: Inorganics (EPA Method See cover

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

LDC #: 34376B6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: CK

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
X. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 34376B6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer: [illegible]

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→12	W	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
QC 13→15	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
16→18	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
19, 20	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
21	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
22	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
23	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
24→26	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 34376B6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: MG
2nd reviewer: Q

All circled dates have exceeded the technical holding time.
(Y)N N/A Were all samples preserved as applicable to each method ?
(Y)N N/A Were all cooler temperatures within validation criteria?

Method:		150.1					
Parameters:		pH					
Technical holding time:		48 hr					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
1	06:20 4-27-15	10:21 4-29-15	(52.02 hr)				J/UJ/P (det
2	06:30 4-27-15	10:36 4-29-15	(51.93)				
3	07:30 4-27-15	12:25 4-29-15	(52.92)				
4	08:05 4-27-15	10:52 4-29-15	(50.78)				
5	08:35 4-27-15	11:06 4-29-15	(50.52)				
6	09:10 4-27-15	11:12 4-29-15	(50.03)				
7	10:00 4-27-15	11:19 4-29-15	(49.32)				
8	10:10 4-27-15	11:26 4-29-15	(49.27)				
9	11:00 4-27-15	11:33 4-29-15	(48.55)				
10	11:35 4-27-15	11:40 4-29-15	(48.08)				
21	07:30 4-27-15	12:31 4-29-15	(53.02)				
22	08:05 4-27-15	10:59 4-29-15	(50.90)				

LDC #: 34376B6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: [illegible]

METHOD: Inorganics, EPA Method see cover

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

Sample: 1 Field Blank / Trip Blank / Rinsate (circle one) EB

Analyte	Concentration Units ( )
pH	5.34 (pH units)
Cl	0.21 (mg/L)
NO3-N	0.028 (↓)
SO4	0.27 (↓)

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Analyte	Concentration Units ( )

LDC# 34376B6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: CL

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD	
	7	8		
Total Alkalinity	180	180	0	
Bicarbonate	220	220	0	
Chloride	46	46	0	
Nitrate as N	1.2	1.2	0	
Nitrite as N	0.043	0.039	10	
pH (pH units)	8.01	8.02	0	
Sulfate	33	32	3	
TDS	360	350	3	

V:\FIELD DUPLICATES\FD_inorganic\34376B6.WPD

LDC #: 34376B6

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of Cr VI was recalculated. Calibration date: 4-28-15

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

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

Type of Analysis	Analyte	Standard ID	Conc. Found (units)	Abs. True (units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration	Cr VI	Blank	0.000 (mg/L)	0.001	r^2=0.999522	r^2=0.999597	Y
		Standard 1	0.002 ( )	0.002			
		Standard 2	0.005 ( )	0.005			
		Standard 3	0.025 ( )	0.020			
		Standard 4	0.050 ( )	0.040			
		Standard 5	0.100 ( )	0.076			
		Standard 6	–	–			
		Standard 7	–	–			
Calibration verification	Cl	0046 ICV	52.29 (mg/L)	50.00 (mg/L)	105	105	
Calibration verification	NO_3-N	0046 ICV	5.251 (mg/L)	5.000 (mg/L)	105	105	
Calibration verification	ClO_4	0301 CCV4	10.61 (µg/L)	10.00 (µg/L)	106	106	

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

LDC #: 34376B6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

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

METHOD: Inorganics, Method See cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	NO_2-N	0.499 (mg/L)	0.500 (mg/L)	99.8	99.7	Y
0356 19	Matrix spike sample	ClO_4	(SSR-SR) 10.79 (µg/L)	10.101 (µg/L)	107	107	↓
23	Duplicate sample	TDS	815.0 (mg/L)	815.0 (mg/L)	0.00	0.00	↓

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

TOTCLC.6

LDC #: 34376B6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: Inorganics, Method see cover

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for #12, SO4 reported with a positive detect were recalculated and verified using the following equation:

Concentration = Quadratic; 1x dil Recalculation:

$$SO_4 = \frac{\sqrt{4 \times 0.0001 \times (15.228 + 0.0325) + (0.1747)^2} - 0.1747}{2 \times 0.0001} = 83.37 \text{ mg/L}$$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	3	TDS	230	230	Y
	↓	Cr VI	0.0015	0.0016	↓
		total Alk.	150	150	
2	12	pH	7.93 (pH units)	7.93 (pH units)	
	↓	SO4	83	83	

Note: methods 314.0, 353.2 are N.D. for level IV samples

RECALC.8

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 9, 2015

Parameters: Volatiles

Validation Level: Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10147

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-7-4/28/15	1510147-01	Water	04/28/15
EB-7-4/28/15	1510147-02	Water	04/28/15
MW-18-5	1510147-03	Water	04/28/15
MW-18-4	1510147-04	Water	04/28/15
MW-18-3	1510147-05	Water	04/28/15
MW-18-2	1510147-06	Water	04/28/15
MW-21-5	1510147-07	Water	04/28/15
MW-21-4	1510147-08	Water	04/28/15
MW-21-3	1510147-09	Water	04/28/15
MW-21-2	1510147-10	Water	04/28/15
DUP-7-2Q15	1510147-11	Water	04/28/15
MW-18-5MS	1510147-03MS	Water	04/28/15
MW-18-5MSD	1510147-03MSD	Water	04/28/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

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 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/30/15	Bromomethane Methyl iodide	37.2 38.2	All samples in SDG 15-10147	UJ (all non-detects) UJ (all non-detects)	P

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-7-4/28/15 was identified as a trip blank. No contaminants were found.

Sample EB-7-4/28/15 was identified as an equipment blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples MW-21-2 and DUP-7-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-21-2	DUP-7-2Q15	
Chloroform	0.33	0.34	3
Tetrachloroethene	1.4	1.4	0
Trichloroethene	0.26	0.23	12
Methyl-tert-butyl ether	0.14	0.11U	200

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D, data were qualified as estimated in eleven samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (UJ) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Volatiles - Data Qualification Summary - SDG 15-10147

Sample	Compound	Flag	A or P	Reason
TB-7-4/28/15 EB-7-4/28/15 MW-18-5 MW-18-4 MW-18-3 MW-18-2 MW-21-5 MW-21-4 MW-21-3 MW-21-2 DUP-7-2Q15	Bromomethane Methyl iodide	UJ (all non-detects) UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL, 2Q2015
Volatiles - Laboratory Blank Data Qualification Summary - SDG 15-10147

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-7-4/28/15

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-01	File ID:	30APR12.D
Sampled:	04/28/15 06:10	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 09:55
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-7-4/28/15

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-01	File ID:	30APR12.D
Sampled:	04/28/15 06:10	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 09:55
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/4/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-7-4/28/15

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-01	File ID:	30APR12.D
Sampled:	04/28/15 06:10	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 09:55
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U U5
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.2500	92.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.230	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6500	96.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	203961	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	80865	9.72	82328	9.72	
1,4-Difluorobenzene (IS)	308239	7.52	313295	7.52	

6/11/15 q

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-7-4/28/15

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-02	File ID:	30APR13.D
Sampled:	04/28/15 06:20	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 10:17
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-7-4/28/15

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-02	File ID:	30APR13.D
Sampled:	04/28/15 06:20	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 10:17
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-7-4/28/15

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-02	File ID:	30APR13.D
Sampled:	04/28/15 06:20	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 10:17
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U 45
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9600	99.6	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9500	99.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6800	96.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	206875	6.73	205102	6.74	
Chlorobenzene-d5 (IS)	82794	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	314063	7.52	313295	7.52	

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3761 Attucks Drive
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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-5

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-03	File ID:	30APR06.D
Sampled:	04/28/15 06:50	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 07:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U US
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-18-5

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-03	File ID:	30APR06.D
Sampled:	04/28/15 06:50	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 07:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.11	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-5

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-03	File ID:	30APR06.D
Sampled:	04/28/15 06:50	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 07:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methaerylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% RFC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6800	96.8	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.070	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2700	92.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	190423	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	75033	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	279699	7.52	313295	7.52	

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-4

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-04	File ID:	30APR14.D
Sampled:	04/28/15 07:30	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 10:40
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	1.9	
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.95	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-4

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-04	File ID:	30APR14.D
Sampled:	04/28/15 07:30	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 10:40
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	1.3	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.4	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-4

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-04	File ID:	30APR14.D
Sampled:	04/28/15 07:30	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 10:40
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6300	96.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9500	99.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7000	97.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	198506	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	78368	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	296869	7.52	313295	7.52	

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Tidewater Inc.
3761 Attucks Drive
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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-3

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-05	File ID:	30APR15.D
Sampled:	04/28/15 09:00	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 11:03
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	4.4	
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.99	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-18-3

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-05	File ID:	30APR15.D
Sampled:	04/28/15 09:00	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 11:03
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.14	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.44	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-3

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-05	File ID:	30APR15.D
Sampled:	04/28/15 09:00	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 11:03
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6800	96.8	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7100	97.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3700	93.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	201089	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	80301	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	311438	7.52	313295	7.52	

6/11/15 Q.

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-2

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-06	File ID:	30APR16.D
Sampled:	04/28/15 09:35	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 11:26
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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3761 Attucks Drive
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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-2

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-06	File ID:	30APR16.D
Sampled:	04/28/15 09:35	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 11:26
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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3761 Attucks Drive
Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-18-2

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-06	File ID:	30APR16.D
Sampled:	04/28/15 09:35	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 11:26
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.4600	94.6	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.000	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.080	101	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	210947	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	81137	9.72	82328	9.72	
1,4-Difluorobenzene (IS)	314305	7.52	313295	7.52	

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3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-5

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-07	File ID:	30APR17.D
Sampled:	04/28/15 10:40	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 11:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	7.0	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-5

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-07	File ID:	30APR17.D
Sampled:	04/28/15 10:40	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 11:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.99	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-5

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-07	File ID:	30APR17.D
Sampled:	04/28/15 10:40	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 11:48
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9700	99.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8100	98.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3800	93.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	195791	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	79477	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	301623	7.52	313295	7.52	

6/11/15 [illegible]

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-4

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-08	File ID:	30APR18.D
Sampled:	04/28/15 11:20	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 12:11
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	7.7	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15 CR

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-4

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-08	File ID:	30APR18.D
Sampled:	04/28/15 11:20	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 12:11
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	1.2	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.14	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/11/15 R

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-4

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-08	File ID:	30APR18.D
Sampled:	04/28/15 11:20	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 12:11
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.390	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9500	99.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4900	94.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	196021	6.73	205102	6.74	
Chlorobenzene-d5 (IS)	78988	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	301586	7.52	313295	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-3

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-09	File ID:	30APR19.D
Sampled:	04/28/15 11:55	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 12:34
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	1.1	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.15	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.36	J
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-3

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-09	File ID:	30APR19.D
Sampled:	04/28/15 11:55	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 12:34
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	3.0	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.2	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-3

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-09	File ID:	30APR19.D
Sampled:	04/28/15 11:55	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 12:34
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9100	99.1	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8500	98.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4200	94.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	188429	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	72218	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	285824	7.52	313295	7.52	

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-2

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-10	File ID:	30APR20.D
Sampled:	04/28/15 12:30	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 12:57
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U U5
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.33	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-2

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-10	File ID:	30APR20.D
Sampled:	04/28/15 12:30	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 12:57
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	1.4	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.26	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/11/15 Q

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-2

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-10	File ID:	30APR20.D
Sampled:	04/28/15 12:30	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 12:57
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9100	99.1	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8700	98.7	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4100	94.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	184316	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	74319	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	285558	7.52	313295	7.52	

6/11/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-7-2Q15

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-11	File ID:	30APR21.D
Sampled:	04/28/15 12:40	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 13:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.34	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-7-2Q15

Laboratory:	BC Laboratories		SDG:	15-10147	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510147-11	File ID:	30APR21.D
Sampled:	04/28/15 12:40	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 13:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.14	J
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	1.4	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.23	J
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/11/15 R

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:49:39PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

DUP-7-2Q15

Laboratory:	BC Laboratories			SDG:	15-10147
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510147-11	File ID:	30APR21.D
Sampled:	04/28/15 12:40	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 13:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8400	98.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7600	97.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7800	97.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	202235	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	79800	9.72	82328	9.72	
1,4-Difluorobenzene (IS)	310902	7.52	313295	7.52	

6/11/15

LDC #: 34376C1
SDG #: 15-10147
Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 6-3-15
Page: 1 of 2
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA Method 524.2)

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.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	≤ 20 / ≤ 30
IV.	Continuing calibration	SW	≤ 30
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB= 1 ; EB= 2
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	~~N~~ A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D= 10+11
XI.	Internal standards	A	
XII.	Compound quantitation RL/~~LOQ/LODs~~	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	TB-7-4/28/15	1510147-01	Water	04/28/15
2	EB-7-4/28/15	1510147-02	Water	04/28/15
3	MW-18-5	1510147-03	Water	04/28/15
4	MW-18-4	1510147-04	Water	04/28/15
5	MW-18-3	1510147-05	Water	04/28/15
6	MW-18-2	1510147-06	Water	04/28/15
7	MW-21-5	1510147-07	Water	04/28/15
8	MW-21-4	1510147-08	Water	04/28/15
9	MW-21-3	1510147-09	Water	04/28/15
10	MW-21-2	1510147-10	Water	04/28/15
11	DUP-7-2Q15	1510147-11	Water	04/28/15
12	MW-18-5MS	1510147-03MS	Water	04/28/15
13	MW-18-5MSD	1510147-03MSD	Water	04/28/15

LDC #: 34376C1

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-3-15

SDG #: 15-10147

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: TM

2nd Reviewer: 9

METHOD: GC/MS Volatiles (EPA Method 524.2)

	Client ID	Lab ID	Matrix	Date
14				
15				
16				
17				
18				

Notes:

	BYD2588-BLK1						

TARGET COMPOUND WORKSHEET

METHOD: VOA

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

LDC #: 34376C1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

METHOD: GC/MS VOA (EPA Method 524.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: <30.0%)	Associated Samples	Qualifications
	04/30/15	1506864-CCV1	B	37.2	all	J/UJ/P (ND)
	↓	1506864-CCV2	PPPP	38.2	↓	↓ ↓

CONCAL.1S5

LDC #: 34376C1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

Compound	Concentration (µg/L)		RPD
	10	11	
K	0.33	0.34	3
AA	1.4	1.4	Ø
S	0.26	0.23	12
LL	0.14	0.111	200

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 11, 2015

Parameters: Metals

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10147

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-7-4/28/15	1510147-02	Water	04/28/15
MW-18-5	1510147-03	Water	04/28/15
MW-18-4	1510147-04	Water	04/28/15
MW-18-3	1510147-05	Water	04/28/15
MW-18-2	1510147-06	Water	04/28/15
MW-21-5	1510147-07	Water	04/28/15
MW-21-4	1510147-08	Water	04/28/15
MW-21-3	1510147-09	Water	04/28/15
MW-21-2	1510147-10	Water	04/28/15
DUP-7-2Q15	1510147-11	Water	04/28/15
EB-7-4/28/15MS	1510147-02MS	Water	04/28/15
EB-7-4/28/15MSD	1510147-02MSD	Water	04/28/15
EB-7-4/28/15DUP	1510147-02DUP	Water	04/28/15
MW-18-4MS	1510147-04MS	Water	04/28/15
MW-18-4MSD	1510147-04MSD	Water	04/28/15
MW-18-4DUP	1510147-04DUP	Water	04/28/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium by Environmental Protection Agency (EPA) Methods 200.7 and 200.8

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of ICS analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium	0.91500 ug/L	All samples in SDG 15-10147
ICB/CCB	Iron	34.621 ug/L	All samples in SDG 15-10147
ICB/CCB	Chromium	0.56200 ug/L	EB-7-4/28/15
ICB/CCB	Sodium	0.031590 mg/L	EB-7-4/28/15 MW-18-4
ICB/CCB	Sodium	0.033837 mg/L	MW-18-5 MW-18-3 MW-18-2 MW-21-5 MW-21-4 MW-21-3 MW-21-2 DUP-7-2Q15

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-7-4/28/15	Chromium Iron	0.76 ug/L 16 ug/L	0.76U ug/L 16U ug/L
MW-18-5	Iron	150 ug/L	150U ug/L
MW-18-4	Chromium Iron	1.2 ug/L 73 ug/L	1.2U ug/L 73U ug/L
MW-18-3	Chromium Iron	2.4 ug/L 77 ug/L	2.4U ug/L 77U ug/L
MW-18-2	Chromium	0.68 ug/L	0.68U ug/L
MW-21-5	Chromium Iron	1.6 ug/L 57 ug/L	1.6U ug/L 57U ug/L
MW-21-4	Chromium	1.5 ug/L	1.5U ug/L
MW-21-3	Chromium Iron	0.81 ug/L 160 ug/L	0.81U ug/L 160U ug/L
MW-21-2	Chromium Iron	0.73 ug/L 100 ug/L	0.73U ug/L 100U ug/L
DUP-7-2Q15	Chromium Iron	0.56 ug/L 79 ug/L	0.56U ug/L 79U ug/L

VI. Field Blanks

Sample EB-7-4/28/15 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-7-4/28/15	Iron Chromium Potassium Sodium	16 ug/L 0.65 ug/L 0.11 mg/L 0.16 mg/L

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
MW-18-4MS/MSD (MW-18-5 MW-18-4 MW-18-3 MW-18-2 MW-21-5 MW-21-4 MW-21-3 MW-21-2 DUP-7-2Q15)	Calcium	126 (75-125)	-	J (all detects)	A
MW-18-4MS/MSD (EB-7-4/28/15)	Calcium	126 (75-125)	-	NA	-

Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

IX. ICP Serial Dilution

ICP serial dilution analysis was performed on an associated project sample. The analysis criteria were met.

X. Laboratory Control Samples (LCS)

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

Samples MW-21-2 and DUP-7-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-21-2	DUP-7-2Q15	
Calcium	160000	160000	0
Chromium	0.73	0.56	26
Iron	100	79	23
Magnesium	54000	53000	2
Potassium	3300	3300	0
Sodium	63000	63000	0

XII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

XIII. Sample Result Verification

Raw data were not reviewed for Level III validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due MS/MSD %R, data were qualified as estimated in nine samples.

Due to laboratory blank contamination, data were qualified as not detected in ten samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Metals - Data Qualification Summary - SDG 15-10147

Sample	Analyte	Flag	A or P	Reason
MW-18-5 MW-18-4 MW-18-3 MW-18-2 MW-21-5 MW-21-4 MW-21-3 MW-21-2 DUP-7-2Q15	Calcium	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R)

NASA JPL, 2Q2015
Metals - Laboratory Blank Data Qualification Summary - SDG 15-10147

Sample	Analyte	Modified Final Concentration	A or P
EB-7-4/28/15	Chromium Iron	0.76U ug/L 16U ug/L	A
MW-18-5	Iron	150U ug/L	A
MW-18-4	Chromium Iron	1.2U ug/L 73U ug/L	A
MW-18-3	Chromium Iron	2.4U ug/L 77U ug/L	A
MW-18-2	Chromium	0.68U ug/L	A
MW-21-5	Chromium Iron	1.6U ug/L 57U ug/L	A
MW-21-4	Chromium	1.5U ug/L	A
MW-21-3	Chromium Iron	0.81U ug/L 160U ug/L	A
MW-21-2	Chromium Iron	0.73U ug/L 100U ug/L	A
DUP-7-2Q15	Chromium Iron	0.56U ug/L 79U ug/L	A

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02RE1
File ID: PE2_150512-095
Sampled: 04/28/15 06:20
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 17:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.018	1	U	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.16	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.11	1	J	EPA-200.7

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03RE1
File ID: PE2_150512-098
Sampled: 04/28/15 06:50
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 17:56
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	12	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	4.7	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	53	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.5	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-18-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-04RE1
File ID: PE2_150512-089
Sampled: 04/28/15 07:30
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 17:31
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	35	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	11	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	32	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.4	1		EPA-200.7

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-18-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-05RE1
File ID: PE2_150512-099
Sampled: 04/28/15 09:00
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 17:59
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	59	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	18	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	22	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06RE1
File ID: PE2_150512-100
Sampled: 04/28/15 09:35
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:01
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	60	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	21	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	22	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07RE1
File ID: PE2_150512-101
Sampled: 04/28/15 10:40
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:04
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	92	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	30	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	37	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.6	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08RE1
File ID: PE2_150512-102
Sampled: 04/28/15 11:20
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:07
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	94	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	31	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	32	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.6	1		EPA-200.7

6/11/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09RE1
File ID: PE2_150512-103
Sampled: 04/28/15 11:55
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:09
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	140	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	46	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	54	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.6	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10RE1
File ID: PE2_150512-104
Sampled: 04/28/15 12:30
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	160	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	54	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	63	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

6/11/15

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11RE1
File ID: PE2_150512-105
Sampled: 04/28/15 12:40
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:15
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	160	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	53	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	63	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02
File ID: PE_EL2_150505-170
Sampled: 04/28/15 06:20
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 22:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.76	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15

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Tidewater Inc.
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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03
File ID: PE_EL2_150505-178
Sampled: 04/28/15 06:50
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 23:11
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.81	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-18-4

Laboratory: BC Laboratorics
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-04
File ID: PE_EL2_150505-179
Sampled: 04/28/15 07:30
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 23:14
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.97	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.2	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-18-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-05
File ID: PE_EL2_150505-180
Sampled: 04/28/15 09:00
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 23:17
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.3	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	2.4	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15 a

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06
File ID: PE_EL2_150505-181
Sampled: 04/28/15 09:35
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 23:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.4	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.68	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07
File ID: PE_EL2_150505-182
Sampled: 04/28/15 10:40
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 23:24
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.6	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08
File ID: PE_EL2_150505-183
Sampled: 04/28/15 11:20
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 23:27
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.5	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09
File ID: PE_EL2_150505-184
Sampled: 04/28/15 11:55
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 23:30
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.81	1	J ~~U~~	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10
File ID: PE_EL2_150505-185
Sampled: 04/28/15 12:30
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 23:33
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.73	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15 Q

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11
File ID: PE_EL2_150505-186
Sampled: 04/28/15 12:40
Prepared: 05/05/15 09:00
Analyzed: 05/05/15 23:36
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0344
Sequence: 1507270
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.56	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15 9

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02RE1
File ID: PE2_150512-095
Sampled: 04/28/15 06:20
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 17:47
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	16	1	J U	EPA-200.7

6/11/15 R

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03RE1
File ID: PE2_150512-098
Sampled: 04/28/15 06:50
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 17:56
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	150	1	U	EPA-200.7

6/11/15 9

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-18-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-04RE1
File ID: PE2_150512-089
Sampled: 04/28/15 07:30
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 17:31
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	73	1	U	EPA-200.7

6/11/15 9

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-18-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-05RE1
File ID: PE2_150512-099
Sampled: 04/28/15 09:00
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 17:59
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	77	1	U	EPA-200.7

6/11/15 9

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06RE1
File ID: PE2_150512-100
Sampled: 04/28/15 09:35
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:01
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	330	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07RE1
File ID: PE2_150512-101
Sampled: 04/28/15 10:40
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:04
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	57	1	U	EPA-200.7

6/11/15 R

Tidewater Inc.
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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08RE1
File ID: PE2_150512-102
Sampled: 04/28/15 11:20
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:07
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	200	1		EPA-200.7

6/11/15

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09RE1
File ID: PE2_150512-103
Sampled: 04/28/15 11:55
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:09
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	160	1	U	EPA-200.7

6/11/15

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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10RE1
File ID: PE2_150512-104
Sampled: 04/28/15 12:30
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	100	1	U	EPA-200.7

6/11/15

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:53:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11RE1
File ID: PE2_150512-105
Sampled: 04/28/15 12:40
Prepared: 05/12/15 08:15
Analyzed: 05/12/15 18:15
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE1010
Sequence: 1507701
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	79	1	U	EPA-200.7

6/11/15

LDC #: 34376C4a

SDG #: 15-10147

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-10-15

Page: 1 of 2

Reviewer: MG

2nd Reviewer: CL

METHOD: Metals (EPA Method 200.7/200.8)

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.	Sample receipt/Technical holding times	A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	SW	EB=1
VII.	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD
VIII.	Duplicate sample analysis	A	DUP
IX.	ICP Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	SW	D = 9+10
XII.	Internal Standard (ICP-MS)	N	not reviewed
XIII.	Sample Result Verification	N	
XIV.	Overall Assessment of Data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	EB-7-4/28/15	1510147-02	Water	04/28/15
2	MW-18-5	1510147-03	Water	04/28/15
3	MW-18-4	1510147-04	Water	04/28/15
4	MW-18-3	1510147-05	Water	04/28/15
5	MW-18-2	1510147-06	Water	04/28/15
6	MW-21-5	1510147-07	Water	04/28/15
7	MW-21-4	1510147-08	Water	04/28/15
8	MW-21-3	1510147-09	Water	04/28/15
9	MW-21-2	1510147-10	Water	04/28/15
10	DUP-7-2Q15	1510147-11	Water	04/28/15
11	EB-7-4/28/15MS	1510147-02MS	Water	04/28/15
12	EB-7-4/28/15MSD	1510147-02MSD	Water	04/28/15
13	EB-7-4/28/15DUP	1510147-02DUP	Water	04/28/15
14	MW-18-4MS	1510147-04MS	Water	04/28/15
15	MW-18-4MSD	1510147-04MSD	Water	04/28/15

LDC #: 34376C4a

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-10-15

SDG #: 15-10147

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16	MW-18-4DUP	1510147-04DUP	Water	04/28/15
17				
18				
19				
20				
21	PBW			

Notes:

LDC #: 34376C4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: MG
2nd reviewer: ✓

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1→10	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
QC 11→13	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
↓ 14→16	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
Analysis Method		
ICP	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
ICP-MS	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____

Comments: Mercury by CVAA if performed

LDC #: 34376C4
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Reviewer: MG
2nd Reviewer: [illegible]

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: all

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	1	2	3	4	5	6	7	8	9	10
Cr		0.91500		4.575	0.76		1.2	2.4	0.68	1.6	1.5	0.81	0.73	0.56
Fe			34.621	173.1	16	150	73	77		57		160	100	79

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	1									
Cr			0.56200	2.810	see PB									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1,3 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na			0.031590	0.1580										

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 2,4-10 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na			0.033837	0.1692										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 34376C4a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: ~~N~~

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

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

Sample: 1 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Fe	16 (µg/L)
Cr	0.76 (↓)
K	0.11 (mg/L)
Na	0.16 (↓)

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Analyte	Concentration Units ( )

LDC #: 34376C4a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

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

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

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

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

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

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

LEVEL IV ONLY:

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

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	14/15	water	Ca	126			all	J dets/A (det in 2→10)

Comments:

MSD.4SW

LDC#: 34376C4a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

Analyte	Concentration (ug/L)		RPD	
	9	10		
Calcium	160000	160000	0	
Chromium	0.73	0.56	26	
Iron	100	79	23	
Magnesium	54000	53000	2	
Potassium	3300	3300	0	
Sodium	63000	63000	0	

V:\FIELD DUPLICATES\FD_inorganic\34376C4a.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 15, 2015

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10147

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-7-4/28/15	1510147-02	Water	04/28/15
MW-18-5	1510147-03	Water	04/28/15
MW-18-4	1510147-04	Water	04/28/15
MW-18-3	1510147-05	Water	04/28/15
MW-18-2	1510147-06	Water	04/28/15
MW-21-5	1510147-07	Water	04/28/15
MW-21-4	1510147-08	Water	04/28/15
MW-21-3	1510147-09	Water	04/28/15
MW-21-2	1510147-10	Water	04/28/15
DUP-7-2Q15	1510147-11	Water	04/28/15
EB-7-4/28/15MS	1510147-02MS	Water	04/28/15
EB-7-4/28/15MSD	1510147-02MSD	Water	04/28/15
EB-7-4/28/15DUP	1510147-02DUP	Water	04/28/15
MW-21-3DUP	1510147-09DUP	Water	04/28/15
MW-21-2MS	1510147-10MS	Water	04/28/15
MW-21-2MSD	1510147-10MSD	Water	04/28/15
MW-21-2DUP	1510147-10DUP	Water	04/28/15
DUP-7-2Q15DUP	1510147-11DUP	Water	04/28/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Hexavalent Chromium by EPA SW 846 Method 7196
Nitrite as Nitrogen by EPA Method 353.2
Perchlorate by EPA Method 314.0
pH by EPA Method 150.1
Total Dissolved Solids by EPA Method 160.1

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB-7-4/28/15	Total dissolved solids	10 days	7 days	UJ (all non-detects)	A

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method(s). No contaminants were found in the laboratory blanks.

V. Field Blanks

Sample EB-7-4/28/15 was identified as an equipment. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-7-4/28/15	pH Chloride Nitrate as N Sulfate	5.13 pH units 0.18 mg/L 0.026 mg/L 0.28 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples MW-21-2 and DUP-7-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-21-2	DUP-7-2Q15	
Total Alkalinity	300 mg/L	300 mg/L	0
Bicarbonate	360 mg/L	360 mg/L	0
Chloride	180 mg/L	180 mg/L	0
Hexavalent Chromium	0.00080 mg/L	0.00070U mg/L	200
Nitrate as N	8.8 mg/L	8.9 mg/L	1
Nitrite as N	0.027 mg/L	0.026 mg/L	4
pH	7.34 pH units	7.33 pH units	0
Perchlorate	2.8 ug/L	2.3 ug/L	20
Sulfate	170 mg/L	180 mg/L	6
TDS	900 mg/L	860 mg/L	5

X. Sample Result Verification

Raw data were not reviewed for Level III validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to technical holding time, data were qualified as estimated in one sample.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Wet Chemistry - Data Qualification Summary - SDG 15-10147

Sample	Analyte	Flag	A or P	Reason
EB-7-4/28/15	Total dissolved solids	UJ (all non-detects)	A	Technical holding time

NASA JPL, 2Q2015
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 15-10147

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02
File ID: Tiamo042915-086
Sampled: 04/28/15 06:20
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 15:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.0	1	U	SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.1	1	U	SM-2320B

4/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03
File ID: Tiamo042915-087
Sampled: 04/28/15 06:50
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	160	1		SM-2320B
3812-32-6	Carbonate	6.2	1		SM-2320B
---	Total Alkalinity as CaCO3	140	1		SM-2320B

6/15/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-18-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-04
File ID: Tiamo042915-088
Sampled: 04/28/15 07:30
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	200	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	160	1		SM-2320B

6/15/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-18-3

Laboratory: BC Laboratories
SDG: I5-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-05
File ID: Tiamo042915-089
Sampled: 04/28/15 09:00
Prepared: 04/29/I5 07:00
Analyzed: 04/29/I5 16:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	250	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	200	1		SM-2320B

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06
File ID: Tiamo042915-090
Sampled: 04/28/15 09:35
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	250	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	210	1		SM-2320B

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07
File ID: Tiamo042915-091
Sampled: 04/28/15 10:40
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	200	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	160	1		SM-2320B

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08
File ID: Tiamo042915-092
Sampled: 04/28/15 11:20
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	190	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	150	1		SM-2320B

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09
File ID: Tiamo042915-097
Sampled: 04/28/15 11:55
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2562
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	350	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	290	2	D	SM-2320B

6/15/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10
File ID: Tiamo042915-099
Sampled: 04/28/15 12:30
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 17:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2562
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	360	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	300	2	D	SM-2320B

6/15/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11
File ID: Tiamo042915-100
Sampled: 04/28/15 12:40
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 17:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2562
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	360	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	300	2	D	SM-2320B

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02
File ID: 150428 2235 CR6-005
Sampled: 04/28/15 06:20
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

4/15/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03
File ID: 150428 2235 CR6-009
Sampled: 04/28/15 06:50
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15 8

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-18-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-04
File ID: 150428 2235 CR6-010
Sampled: 04/28/15 07:30
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15 [illegible]

Tidewater Inc.
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-18-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-05
File ID: 150428 2235 CR6-011
Sampled: 04/28/15 09:00
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0018	1	J	EPA-7196

6/15/15 8

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06
File ID: 150428 2235 CR6-012
Sampled: 04/28/15 09:35
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15 8

Tidewater Inc.
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07
File ID: 150428 2235 CR6-015
Sampled: 04/28/15 10:40
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0011	1	J	EPA-7196

6/15/15 8

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08
File ID: 150428 2235 CR6-016
Sampled: 04/28/15 11:20
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0010	1	J	EPA-7196

6/15/15 8

Tidewater Inc.
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09
File ID: 150428 2235 CR6-017
Sampled: 04/28/15 11:55
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15 8

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10
File ID: 150428 2235 CR6-018
Sampled: 04/28/15 12:30
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00080	1	J	EPA-7196

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11
File ID: 150428 2235 CR6-019
Sampled: 04/28/15 12:40
Prepared: 04/28/15 22:35
Analyzed: 04/28/15 22:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2671
Sequence: 1506943
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/15/15 Q

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02
File ID: 150428 2312 NO2-042
Sampled: 04/28/15 06:20
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:12
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 9

Tidewater Inc.
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03
File ID: 150428 2312 NO2-046
Sampled: 04/28/15 06:50
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:12
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 ?

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-18-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-04
File ID: 150428 2312 NO2-047
Sampled: 04/28/15 07:30
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:12
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.013	1	J	EPA-353.2

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Tidewater Inc.
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-18-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-05
File ID: 150428 2312 NO2-048
Sampled: 04/28/15 09:00
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:12
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 r

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06
File ID: 150428 2312 NO2-049
Sampled: 04/28/15 09:35
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:12
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 8

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Tidewater Inc.
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Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07
File ID: 150428 2312 NO2-052
Sampled: 04/28/15 10:40
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 8

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08
File ID: 150428 2312 NO2-053
Sampled: 04/28/15 11:20
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09
File ID: 150428 2312 NO2-054
Sampled: 04/28/15 11:55
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/15/15 Y

Tidewater Inc.
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10
File ID: 150428 2312 NO2-055
Sampled: 04/28/15 12:30
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.027	1	J	EPA-353.2

6/15/15 T

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3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11
File ID: 150428 2312 NO2-056
Sampled: 04/28/15 12:40
Prepared: 04/28/15 23:12
Analyzed: 04/28/15 23:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2670
Sequence: 1506941
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.026	1	J	EPA-353.2

6/15/15 X

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02
File ID: F051215.seq-26.0000.txt
Sampled: 04/28/15 06:20
Prepared: 05/12/15 13:00
Analyzed: 05/12/15 14:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1104
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/15/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03
File ID: F051215.seq-32.0000.txt
Sampled: 04/28/15 06:50
Prepared: 05/12/15 13:00
Analyzed: 05/12/15 15:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1104
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/15/15 Q

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-18-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-04
File ID: F051215.seq-33.0000.txt
Sampled: 04/28/15 07:30
Prepared: 05/12/15 13:00
Analyzed: 05/12/15 16:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1104
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	13	1		EPA-314.0

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-18-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-05
File ID: F051215.seq-34.0000.txt
Sampled: 04/28/15 09:00
Prepared: 05/12/15 13:00
Analyzed: 05/12/15 16:18
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1104
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	20	1		EPA-314.0

6/15/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06
File ID: F051215.seq-35.0000.txt
Sampled: 04/28/15 09:35
Prepared: 05/12/15 13:00
Analyzed: 05/12/15 16:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1104
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07
File ID: F051215.seq-36.0000.txt
Sampled: 04/28/15 10:40
Prepared: 05/12/15 13:00
Analyzed: 05/12/15 16:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1104
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.7	1	J	EPA-314.0

6/15/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08
File ID: F051215.seq-37.0000.txt
Sampled: 04/28/15 11:20
Prepared: 05/12/15 13:00
Analyzed: 05/12/15 16:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1104
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.5	1	J	EPA-314.0

6/15/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09
File ID: F051215.seq-38.0000.txt
Sampled: 04/28/15 11:55
Prepared: 05/12/15 13:00
Analyzed: 05/12/15 17:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1104
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.8	1	J	EPA-314.0

6/15/15

Tidewater Inc.
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10
File ID: F051215.seq-41.0000.txt
Sampled: 04/28/15 12:30
Prepared: 05/12/15 17:00
Analyzed: 05/12/15 17:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1105
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.8	1	J	EPA-314.0

6/15/15

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11
File ID: F051215.seq-42.0000.txt
Sampled: 04/28/15 12:40
Prepared: 05/12/15 17:00
Analyzed: 05/12/15 18:08
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1105
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.3	1	J	EPA-314.0

6/15/15

Tidewater Inc.
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02
File ID: E042915.seq-06
Sampled: 04/28/15 06:20
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 09:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.18	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.026	1	J	EPA-300.0
14808-79-8	Sulfate	0.28	1	J	EPA-300.0

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03
File ID: E042915.seq-10
Sampled: 04/28/15 06:50
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 10:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.9	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	5.4	1		EPA-300.0

6/15/15 8

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-18-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-04
File ID: E042915.seq-11
Sampled: 04/28/15 07:30
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 10:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.3	1		EPA-300.0
14797-55-8	Nitrate as N	0.83	1		EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

6/15/15 8

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-18-3

Laboratory: BC Laboratories
SDG: I5-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510I47-05
File ID: E042915.seq-I2
Sampled: 04/28/15 09:00
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 11:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	20	1		EPA-300.0
14797-55-8	Nitrate as N	1.7	1		EPA-300.0
14808-79-8	Sulfate	38	1		EPA-300.0

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06
File ID: E042915.seq-13
Sampled: 04/28/15 09:35
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 11:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	12	1		EPA-300.0
14797-55-8	Nitrate as N	0.85	1		EPA-300.0
14808-79-8	Sulfate	34	1		EPA-300.0

6/15/15

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07
File ID: E042915.seq-16
Sampled: 04/28/15 10:40
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 12:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	83	1		EPA-300.0
14797-55-8	Nitrate as N	5.9	1		EPA-300.0
14808-79-8	Sulfate	130	1		EPA-300.0

6/15/15

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08
File ID: E042915.seq-17
Sampled: 04/28/15 11:20
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 12:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	79	1		EPA-300.0
14797-55-8	Nitrate as N	5.8	1		EPA-300.0
14808-79-8	Sulfate	130	1		EPA-300.0

6/15/15 Y

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09
File ID: E042915.seq-18
Sampled: 04/28/15 11:55
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	120	2	D	EPA-300.0
14797-55-8	Nitrate as N	11	2	D	EPA-300.0
14808-79-8	Sulfate	150	2	D	EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10
File ID: E042915.seq-19
Sampled: 04/28/15 12:30
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 13:18
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	180	2	D	EPA-300.0
14797-55-8	Nitrate as N	8.8	2	D	EPA-300.0
14808-79-8	Sulfate	170	2	D	EPA-300.0

6/15/15 Q

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11
File ID: E042915.seq-20
Sampled: 04/28/15 12:40
Prepared: 04/29/15 08:00
Analyzed: 04/29/15 13:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2547
Sequence: 1507556
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	180	2	D	EPA-300.0
14797-55-8	Nitrate as N	8.9	2	D	EPA-300.0
14808-79-8	Sulfate	180	2	D	EPA-300.0

6/15/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02RE1
File ID:
Sampled: 04/28/15 06:20
Prepared: 05/08/15 09:00
Analyzed: 05/08/15 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0762
Sequence: 1507637
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	2.5	0.25	UD U5	EPA-160.1

6/15/15

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3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03
File ID:
Sampled: 04/28/15 06:50
Prepared: 04/30/15 13:00
Analyzed: 04/30/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2637
Sequence: 1507058
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	220	2	D	EPA-160.1

6/13/15

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-18-4

Laboratory: BC Laboratories
SDG: I5-10I47
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510I47-04
File ID:
Sampled: 04/28/I5 07:30
Prepared: 04/30/I5 13:00
Analyzed: 04/30/I5 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: I00 ml / 100 ml
Batch: BYD2637
Sequence: 1507058
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	250	2	D	EPA-I60.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-18-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-05
File ID:
Sampled: 04/28/15 09:00
Prepared: 04/30/15 13:00
Analyzed: 04/30/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2637
Sequence: 1507058
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	340	2	D	EPA-160.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06
File ID:
Sampled: 04/28/15 09:35
Prepared: 04/30/15 13:00
Analyzed: 04/30/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2637
Sequence: 1507058
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	320	2	D	EPA-160.1

6/15/15

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3761 Attucks Drive
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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07
File ID:
Sampled: 04/28/15 10:40
Prepared: 04/30/15 13:00
Analyzed: 04/30/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2637
Sequence: 1507058
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	540	3.33	D	EPA-160.1

6/15/15

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Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08
File ID:
Sampled: 04/28/15 11:20
Prepared: 04/30/15 13:00
Analyzed: 04/30/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2637
Sequence: 1507058
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	530	3.33	D	EPA-160.1

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Tidewater Inc.
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Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09
File ID:
Sampled: 04/28/15 11:55
Prepared: 04/30/15 13:00
Analyzed: 04/30/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2637
Sequence: 1507058
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	770	5	D	EPA-160.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10
File ID:
Sampled: 04/28/15 12:30
Prepared: 04/30/15 13:00
Analyzed: 04/30/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2637
Sequence: 1507058
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	900	5	D	EPA-160.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11
File ID:
Sampled: 04/28/15 12:40
Prepared: 04/30/15 13:00
Analyzed: 04/30/15 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYD2637
Sequence: 1507058
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	860	5	D	EPA-160.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

EB-7-4/28/15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-02
File ID: Tiamo042915-086
Sampled: 04/28/15 06:20
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 15:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.13	1		EPA-150.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-18-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-03
File ID: Tiamo042915-087
Sampled: 04/28/15 06:50
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.55	1		EPA-150.1

6/15/15 [illegible]

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-18-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-04
File ID: Tiamo042915-088
Sampled: 04/28/15 07:30
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.30	1		EPA-150.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-18-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-05
File ID: Tiamo042915-089
Sampled: 04/28/15 09:00
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.09	1		EPA-150.1

6/15/15 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-18-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-06
File ID: Tiamo042915-090
Sampled: 04/28/15 09:35
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.06	1		EPA-150.1

6/15/15 T

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-21-5

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-07
File ID: Tiamo042915-091
Sampled: 04/28/15 10:40
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.09	1		EPA-150.1

6/15/15 Y

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-21-4

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-08
File ID: Tiamo042915-092
Sampled: 04/28/15 11:20
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2504
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.89	1		EPA-150.1

6/15/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-21-3

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-09
File ID: Tiamo042915-097
Sampled: 04/28/15 11:55
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 16:57
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2562
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.68	1		EPA-150.1

6/15/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-21-2

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-10
File ID: Tiamo042915-099
Sampled: 04/28/15 12:30
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 17:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2562
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.34	1		EPA-150.1

6/15/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 5:54:48PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

DUP-7-2Q15

Laboratory: BC Laboratories
SDG: 15-10147
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510147-11
File ID: Tiamo042915-100
Sampled: 04/28/15 12:40
Prepared: 04/29/15 07:00
Analyzed: 04/29/15 17:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYD2562
Sequence: 1506992
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.33	1		EPA-150.1

6/15/15 [illegible]

LDC #: 34376C6 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-10-15
SDG #: 15-10147 Level III Page: 1 of 2
Laboratory: BC Laboratories, Inc. Reviewer: MG
2nd Reviewer: [illegible]

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0), pH (EPA Method 150.1), TDS (EPA Method 160.1)

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.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	SW	EB=1
VI.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VII.	Duplicate sample analysis	A	DUP #13; Cl ok by difference
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	D=9+10
X.	Sample result verification	N	
XI.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	EB-7-4/28/15	1510147-02	Water	04/28/15
2	MW-18-5	1510147-03	Water	04/28/15
3	MW-18-4	1510147-04	Water	04/28/15
4	MW-18-3	1510147-05	Water	04/28/15
5	MW-18-2	1510147-06	Water	04/28/15
6	MW-21-5	1510147-07	Water	04/28/15
7	MW-21-4	1510147-08	Water	04/28/15
8	MW-21-3	1510147-09	Water	04/28/15
9	MW-21-2	1510147-10	Water	04/28/15
10	DUP-7-2Q15	1510147-11	Water	04/28/15
11	EB-7-4/28/15MS	1510147-02MS	Water	04/28/15
12	EB-7-4/28/15MSD	1510147-02MSD	Water	04/28/15
13	EB-7-4/28/15DUP	1510147-02DUP	Water	04/28/15
14	MW-21-3DUP	1510147-09DUP	Water	04/28/15
15	MW-21-2MS	1510147-10MS	Water	04/28/15
16	MW-21-2MSD	1510147-10MSD	Water	04/28/15

LDC #: 34376C6

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-10-15

SDG #: 15-10147

Page: 2 of 2

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: ①

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0), pH (EPA Method 150.1), TDS (EPA Method 160.1)

	Client ID	Lab ID	Matrix	Date
17	MW-21-2DUP	1510147-10DUP	Water	04/28/15
18	DUP-7-2Q15DUP	1510147-11DUP	Water	04/28/15
19				
20				
21				
22	PBW1			
23	PBW2			

Notes:

LDC #: 34376C6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer: 9

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→10	W	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
QC 11→13	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
14	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
15→17	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
18	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 34376C6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: MG
2nd reviewer: [illegible]

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:		160.1					
Parameters:		TDS					
Technical holding time:		7 days					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
1	4-28-15	5-8-15	(10 days)				J/UJ/A (ND)
		(reanalysis)					

LDC #: 34376C6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: MG
2nd reviewer: 9

METHOD: Inorganics, EPA Method See cover

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

Sample: 1 Field Blank / Trip Blank / Rinsate (circle one) EB

Analyte	Concentration Units ( )
pH	5.13 (pH units)
Cl	0.18 (mg/L)
NO_3-N	0.026 (↓)
SO_4	0.28 (↓)

Sample: _____ Field Blank / Trip Blank / Rinsate (circle one)

Analyte	Concentration Units ( )

LDC# 34376C6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: [illegible]

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD	
	9	10		
Total Alkalinity	300	300	0	
Bicarbonate	360	360	0	
Chloride	180	180	0	
Hexavalent Chromium	0.00080	0.00070U	200	
Nitrate as N	8.8	8.9	1	
Nitrite as N	0.027	0.026	4	
pH (pH units)	7.34	7.33	0	
Perchlorate (ug/L)	2.8	2.3	20	
Sulfate	170	180	6	
TDS	900	860	5	

V:\FIELD DUPLICATES\FD_inorganic\34376C6.WPD

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Tidewater, Inc.
199 Shell Street
Manhattan Beach, CA 90266
ATTN: Mr. David Conner

June 15, 2015

SUBJECT: NASA JPL, 2Q2015, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on June 1, 2015. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #34382:

SDG #	Fraction
15-10263, 15-10365	Volatiles, 1,4-Dioxane, Metals, Wet Chemistry

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

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

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

Sincerely,

Pei Geng
Project Manager/Senior Chemist

HC

Attachment 1

90/10 (client select)

LDC #34382 (Tidewater- Manhattan Beach, CA / NASA JPL, 2Q2015)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		1,4-Dioxane (8270C)		Metals (200.7 /200.8)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_2-N (353.2)		O-PO_4 (365.1)		Cr(VI) (7196)		CLO_4 (314.0)		pH (150.1)		TDS (160.1)													
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	15-10263	06/01/15	06/22/15	5	0	1	0	3	0	3	0	3	0	3	0	1	0	3	0	4	0	4	0	3	0												
A	15-10263	06/01/15	06/22/15	1	0	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0												
B	15-10365	06/01/15	06/22/15	7	0	1	0	5	0	5	0	5	0	5	0	-	-	5	0	6	0	6	0	5	0												
Total	A/PG			13	0	2	0	9	0	9	0	9	0	9	0	2	0	9	0	11	0	11	0	9	0	0	0	0	0	0	0	0	0	0	0	0	93

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

L:\Tidewater\NASA JPL\34382ST.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 10, 2015

Parameters: Volatiles

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10263

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-8-4/29/15	1510263-01	Water	04/29/15
MW-13	1510263-02	Water	04/29/15
MW-10	1510263-03	Water	04/29/15
MW-5	1510263-04	Water	04/29/15
MW-8	1510263-05	Water	04/29/15
MW-7**	1510263-06**	Water	04/29/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

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 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/30/15	Bromomethane Methyl iodide	37.2 38.2	All samples in SDG 15-10263	UJ (all non-detects) UJ (all non-detects)	P

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-8-4/29/15 was identified as a trip blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

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

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D, data were qualified as estimated in six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (UJ) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Volatiles - Data Qualification Summary - SDG 15-10263

Sample	Compound	Flag	A or P	Reason
TB-8-4/29/15 MW-13 MW-10 MW-5 MW-8 MW-7**	Bromomethane Methyl Iodide	UJ (all non-detects) UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL, 2Q2015
Volatiles - Laboratory Blank Data Qualification Summary - SDG 15-10263

No Sample Data Qualified in this SDG

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-8-4/29/15

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-01	File ID:	30APR22.D
Sampled:	04/29/15 06:30	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 13:42
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-8-4/29/15

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-01	File ID:	30APR22.D
Sampled:	04/29/15 06:30	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 13:42
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-8-4/29/15

Laboratory:	BC Laboratories		SDG:	15-10263	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1510263-01		File ID:	30APR22.D
Sampled:	04/29/15 06:30	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 13:42
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.160	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.090	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8000	98.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	203115	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	79816	9.72	82328	9.72	
1,4-Difluorobenzene (IS)	307173	7.52	313295	7.52	

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Project Manager: David Conner

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EPA-524.2

MW-13

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-02	File ID:	30APR23.D
Sampled:	04/29/15 07:20	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 14:05
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U NT
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	1.5	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-13

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-02	File ID:	30APR23.D
Sampled:	04/29/15 07:20	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 14:05
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.31	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Project Manager: David Conner

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EPA-524.2

MW-13

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-02	File ID:	30APR23.D
Sampled:	04/29/15 07:20	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 14:05
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8300	98.3	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8200	98.2	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3100	93.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	203434	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	81951	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	305271	7.52	313295	7.52	

6/11/15 Q

BC Laboratories, Inc.
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3761 Attucks Drive
Powell, OH 43065

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Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-10

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-03	File ID:	30APR24.D
Sampled:	04/29/15 09:05	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 14:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.83	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.15	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.19	J
156-60-5	trans-1,2-Dichloroethene	1	0.24	J
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-10

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-03	File ID:	30APR24.D
Sampled:	04/29/15 09:05	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 14:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.71	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	6.8	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-10

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-03	File ID:	30APR24.D
Sampled:	04/29/15 09:05	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 14:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U NJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methaerylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7700	97.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.120	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4200	94.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	208142	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	81247	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	309799	7.52	313295	7.52	

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-5

Laboratory:	BC Laboratories		SDG:	15-10263	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510263-04	File ID:	30APR25.D
Sampled:	04/29/15 10:55	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 14:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.35	J
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-5

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-04	File ID:	30APR25.D
Sampled:	04/29/15 10:55	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 14:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.26	J
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	1.3	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-5

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-04	File ID:	30APR25.D
Sampled:	04/29/15 10:55	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 14:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYD2588 Sequence: 1506864 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8400	98.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8900	98.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3700	93.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	200947	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	80538	9.72	82328	9.72	
1,4-Difluorobenzene (IS)	299056	7.52	313295	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-8

Laboratory:	BC Laboratories		SDG:	15-10263	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510263-05	File ID:	30APR26.D
Sampled:	04/29/15 12:40	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 15:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.20	J
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	4.1	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-8

Laboratory:	BC Laboratorics			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-05	File ID:	30APR26.D
Sampled:	04/29/15 12:40	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 15:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.23	J
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-8

Laboratory:	BC Laboratories		SDG:	15-10263	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID: 1510263-05		File ID:	30APR26.D
Sampled:	04/29/15 12:40	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 15:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U UJ
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Diehloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7100	97.1	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.180	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3800	93.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	200603	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	77670	9.72	82328	9.72	
1,4-Difluorobenzene (IS)	300509	7.53	313295	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-7

Laboratory:	BC Laboratories		SDG:	15-10263	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510263-06	File ID:	30APR27.D
Sampled:	04/29/15 14:10	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 15:35
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.60	
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U UJ
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	4.4	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-7

Laboratory:	BC Laboratories		SDG:	15-10263	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510263-06	File ID:	30APR27.D
Sampled:	04/29/15 14:10	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 15:35
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence: 1506864	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluorocthane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/11/15 R

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 3:50:40PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-7

Laboratory:	BC Laboratories			SDG:	15-10263
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510263-06	File ID:	30APR27.D
Sampled:	04/29/15 14:10	Prepared:	04/30/15 06:00	Analyzed:	04/30/15 15:35
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYD2588	Sequence:	1506864	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U US
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7400	97.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9900	99.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7900	97.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	205323	6.74	205102	6.74	
Chlorobenzene-d5 (IS)	79124	9.73	82328	9.72	
1,4-Difluorobenzene (IS)	309925	7.52	313295	7.52	

6/11/15

LDC #: 34382A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-4-15
SDG #: 15-10263 Level III/IV Page: 1 of 1
Laboratory: BC Laboratories, Inc. Reviewer:
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA Method 524.2)

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.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	≤20, r2 /≤30
IV.	Continuing calibration	SW	≤30
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB= 1
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	C.S.
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/~~LOQ/LODs~~	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	TB-8-4/29/15	1510263-01	Water	04/29/15
2	MW-13	1510263-02	Water	04/29/15
3	MW-10	1510263-03	Water	04/29/15
4	MW-5	1510263-04	Water	04/29/15
5	MW-8	1510263-05	Water	04/29/15
6	MW-7**	1510263-06**	Water	04/29/15
7				
8				
9				
10				
11				
12	BYD2588-BLK1			
13				

LDC #: 34382A1

VALIDATION FINDINGS CHECKLIST

Reviewer: gm
2nd Reviewer: a

Method: Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 34382A1

VALIDATION FINDINGS CHECKLIST

Reviewer: QV
2nd Reviewer: CV

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within +/-40% from the associated calibration standard?	✓			
Were retention times within - 30% of the last continuing calibration or +/- 50% of the initial calibration?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major Ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

TARGET COMPOUND WORKSHEET

METHOD: VOA

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

LDC #: 34382A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA Method 524.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: <30.0%)	Associated Samples	Qualifications
	04/30/15	15068164-CCV1	B	37.2	all	J/UJ/P (NB)
	↓	15068164-CCV2	PPPP	38.2	↓	↓ ↓

CONCAL.1S5

LDC #: 34382A1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

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

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (3rd std)	Recalculated RRF (3rd std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	1504017	04/09/15	Benzene (1st Internal Standard)	2.00574	2.00574	1.915909	1.915909	7.242641	7.242639
			Toluene (2nd Internal Standard)	0.7845816	0.7845816	0.7564958	0.7564958	12.47006	12.47006
			Styrene (3rd Internal Standard)	3.285449	3.285449	2.953568	2.953568	12.55207	12.55206
2	1504017	04/10/15	Acetone (1st Internal Standard)	4.143118e-2	4.143118e-2	4.043636e-2	4.043636e-2	5.719946	5.719937
			2-Hexanone (2nd Internal Standard)	6.539117e-2	6.539117e-2	6.147533e-2	6.147533e-2	8.80841	8.808423
			t-1,4-Dichloro-2-butene (3rdInternalStandard)	0.1519529	0.1519529	0.1397942	0.1397942	13.8276	13.8276
3			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						
4			(1st Internal Standard)						
			(2nd Internal Standard)						
			(3rd Internal Standard)						

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

LDC #: 34382A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	15068104-CCV1	04/30/15	Benzene (1st Internal Standard)	1.915909	1.822344	1.822344	4.9	4.9
			Toluene (2nd Internal Standard)	0.75649958	0.7526433	0.7526433	0.5	0.5
			Styrene (3rd Internal Standard)	2.953568	3.073477	3.073477	4.1	4.1
2	15068104-CCV2	04/30/15	Acetone (1st Internal Standard)	$4.043626e^{-2}$	$3.579286e^{-2}$	$3.579286e^{-2}$	11.5	11.5
			2-Hexanone (2nd Internal Standard)	$6.147533e^{-2}$	$5.320993e^{-2}$	$5.320993e^{-2}$	13.4	13.4
			t-1,4-Dichloro-2-butene (3rd Internal Standard)	0.1397942	0.1289279	0.1289279	7.8	7.8
3			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					
4			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					

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

LDC #: 34382A1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 6

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10.000	9.9900	99.9	99.9	Ø
Bromofluorobenzene	↓	9.7900	97.9	97.9	Ø
1,2-Dichlorobenzene-d4	↓	9.7400	97.4	97.4	Ø
Dibromofluoromethane	NA				

Sample ID:

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

Sample ID:

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

Sample ID:

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

LDC #: 34382A1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: BYD2588-BS1

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.000	NA	23.700	NA	94.8	94.8				
Trichloroethene	↓		26.030		104	104				
Benzene			24.470		97.9	97.9				
Toluene			25.310		101	101				
Chlorobenzene			25.780		103	103				

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

LDC #: 34382A1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

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

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

RRF = Relative response factor of the calibration standard.

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

Df = Dilution factor.

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

Example:

Sample I.D. 6, Chloroform:

Conc. = $\frac{(66590)(10.00)(1.0)}{(205323)(0.739792)(1)(\quad)}$

= 4.383904438 ≈ 4.4 ng/L

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

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 10, 2015

Parameters: 1,4-Dioxane

Validation Level: Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10263

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-13	1510263-02	Water	04/29/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

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

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

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

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
1,4-Dioxane - Data Qualification Summary - SDG 15-10263

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 15-10263

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 15-10263

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:09:19PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-13

Laboratory:	BC Laboratories		SDG:	15-10263	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510263-02	File ID:	04MAY033.D
Sampled:	04/29/15 07:20	Prepared:	04/30/15 18:50	Analyzed:	05/04/15 22:42
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 1 ml

Batch: BYE0307 Sequence: 1507202 Calibration: 1505005 Instrument: MS-B7

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
123-91-1	1,4-Dioxane	1	0.21	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Naphthalene-d8 (Surrogate)	40.000	40.610	102	75 - 132	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
1,4-Dioxane-d8 (IS)	310192	3.14	330438	3.141	

* Values outside of QC limits

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LDC #: 34382A2c

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-3-15

SDG #: 15-10263

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS 1,4-Dioxane (EPA SW846 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.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	r2 / ≤ 20
IV.	Continuing calibration	A	≤ 20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	C.S.
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/~~LOQ/LODs~~	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	MW-13	1510263-02	Water	04/29/15
2				
3				
4				
5				

Notes:

	BYE0307-BLK1						

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 11, 2015

Parameters: Metals

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10263

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-10	1510263-03	Water	04/29/15
MW-5	1510263-04	Water	04/29/15
MW-8	1510263-05	Water	04/29/15
MW-7**	1510263-06**	Water	04/29/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium by Environmental Protection Agency (EPA) Methods 200.7 and 200.8

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of ICS analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Iron	35.601 ug/L	All samples in SDG 15-10263
PB (prep blank)	Sodium	0.029444 mg/L	All samples in SDG 15-10263
ICB/CCB	Sodium	0.14843 mg/L	All samples in SDG 15-10263

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-10	Iron	100 ug/L	100U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-5	Iron	53 ug/L	53U ug/L
MW-8	Iron	52 ug/L	52U ug/L

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Duplicate Sample Analysis

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

IX. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

X. Laboratory Control Samples (LCS)

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

No field duplicates were identified in this SDG.

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples on which an EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by EPA Level III criteria.

XIII. Sample Result Verification

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

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to laboratory blank contamination, data were qualified as not detected in three samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Metals - Data Qualification Summary - SDG 15-10263

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
Metals - Laboratory Blank Data Qualification Summary - SDG 15-10263

Sample	Analyte	Modified Final Concentration	A or P
MW-10	Iron	100U ug/L	A
MW-5	Iron	53U ug/L	A
MW-8	Iron	52U ug/L	A

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03
File ID: PE2_150506-074
Sampled: 04/29/15 09:05
Prepared: 05/06/15 08:20
Analyzed: 05/06/15 16:50
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0480
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	140	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	52	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-04
File ID: PE2_150506-075
Sampled: 04/29/15 10:55
Prepared: 05/06/15 08:20
Analyzed: 05/06/15 16:53
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0480
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	82	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	27	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	30	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	4.3	1		EPA-200.7

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID: PE2_150506-076
Sampled: 04/29/15 12:40
Prepared: 05/06/15 08:20
Analyzed: 05/06/15 16:55
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0480
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	64	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	22	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	23	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: PE2_150506-077
Sampled: 04/29/15 14:10
Prepared: 05/06/15 08:20
Analyzed: 05/06/15 16:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0480
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	73	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	25	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	40	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.9	1		EPA-200.7

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03
File ID: PE_EL2_150511-268
Sampled: 04/29/15 09:05
Prepared: 05/07/15 09:00
Analyzed: 05/12/15 03:10
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0565
Sequence: 1507603
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	3.4	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-04
File ID: PE_EL2_150511-269
Sampled: 04/29/15 10:55
Prepared: 05/07/15 09:00
Analyzed: 05/12/15 03:13
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0565
Sequence: 1507603
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID: PE_EL2_150511-270
Sampled: 04/29/15 12:40
Prepared: 05/07/15 09:00
Analyzed: 05/12/15 03:16
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0565
Sequence: 1507603
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.72	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	7.6	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: PE_EL2_150511-271
Sampled: 04/29/15 14:10
Prepared: 05/07/15 09:00
Analyzed: 05/12/15 03:19
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0565
Sequence: 1507603
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.82	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	83	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03
File ID: PE2_150506-074
Sampled: 04/29/15 09:05
Prepared: 05/06/15 08:20
Analyzed: 05/06/15 16:50
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0480
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	100	1	U	EPA-200.7

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 15I0263-04
File ID: PE2_150506-075
Sampled: 04/29/15 10:55
Prepared: 05/06/15 08:20
Analyzed: 05/06/15 16:53
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0480
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	53	1	U	EPA-200.7

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID: PE2_150506-076
Sampled: 04/29/15 12:40
Prepared: 05/06/15 08:20
Analyzed: 05/06/15 16:55
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0480
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	52	1	U	EPA-200.7

6/11/15 a

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:26:19AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: PE2_150506-077
Sampled: 04/29/15 14:10
Prepared: 05/06/15 08:20
Analyzed: 05/06/15 16:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0480
Sequence: 1507473
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	2500	1		EPA-200.7

6/11/15

LDC #: 34382A4a

SDG #: 15-10263

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-5-15

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

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.	Sample receipt/Technical holding times	A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	N	
VII.	Matrix Spike/Matrix Spike Duplicates	N	client specified
VIII.	Duplicate sample analysis	N	" "
IX.	ICP Serial Dilution	N	not performed
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	not reviewed for level III
XIII.	Sample Result Verification	A	Not reviewed for Level III validation.
XIV.	Overall Assessment of Data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	MW-10	1510263-03	Water	04/29/15
2	MW-5	1510263-04	Water	04/29/15
3	MW-8	1510263-05	Water	04/29/15
4	MW-7**	1510263-06**	Water	04/29/15
5				
6				
7				
8				
9				
10	PBW			

Notes:

LDC #: 34382A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

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

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were < 5X the RL.			✓	
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 34382A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: 9

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?		✓		
Were all percent differences (%Ds) < 10%?			✓	
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.			✓	
X. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XI. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XII. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XIII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 34382A4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: MG
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1 → 4	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
Analysis Method		
ICP	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
ICP-MS	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ____

Comments: Mercury by CVAA if performed

LDC #: 34382A4a
SDG #: See Cover

VALIDATIDN FINDINGS WDRKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)
Soil preparation factor applied: NA
Sample Concentration units, unless otherwise noted: ug/L
Associated Samples: all

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	1	2	3							
Fe			35.601	178.0	100	53	52							

Sample Concentration units, unless otherwise noted: mg/L
Associated Samples: all (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Na		0.029444	0.14843	0.742										

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

LDC #: 34382A4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: MG
2nd Reviewer: [illegible]

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

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
1357 ICV	ICP (Initial calibration)	Ca	49660	50000	99.3	99.3	Y
1158 ICV	ICP/MS (Initial calibration)	Pb	126.466	125.0	101	101	↓
	CVAA (Initial calibration)						↓
1636 CCV6	ICP (Continuing calibration)	Na	49440	50000	98.9	98.9	↓
0254 CCV9	ICP/MS (Continuing calibration)	Cr	38.932	40.00	97.3	97.3	↓
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

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

LDC #: 34382A4a

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: MG
2nd Reviewer: d

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

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
1416 ICSAB	ICP interference check	Fe	189.3 (mg/L)	200.0 (mg/L)	94.7	94.7	Y
0154 LCS	Laboratory control sample	As	98.74 (µg/L)	100.0 (µg/L)	98.7	98.7	↓
–	Matrix spike	–	(SSR-SR) –	–	–	–	–
–	Duplicate	–	–	–	–	–	–
–	ICP serial dilution	–	–	–	–	–	–

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

TOTCLC.4SW

LDC #: 34382A4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MG
2nd reviewer: ✓

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

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for #4, Cr were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

$$\frac{(82.819\ \mu g/L)(0.050L)}{0.050L} = 82.819\ \mu g/L$$

#	Sample ID	Analyte	Reported Concentration (µg/L)	Calculated Concentration (µg/L)	Acceptable (Y/N)
1	4	Fe	2500	2500	Y
		Cr	83	83	↓

Note:

RECALC.4SW

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 11, 2015

Parameters: Wet Chemistry

Validation Level: EPA Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10263

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-13	1510263-02	Water	04/29/15
MW-10	1510263-03	Water	04/29/15
MW-5	1510263-04	Water	04/29/15
MW-8	1510263-05	Water	04/29/15
MW-7**	1510263-06**	Water	04/29/15
MW-13DUP	1510263-02DUP	Water	04/29/15

**Indicates sample underwent Level IV review

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Hexavalent Chromium by EPA SW 846 Method 7196
Nitrite as Nitrogen by EPA Method 353.2
Orthophosphate as Phosphorus by EPA Method 365.1
Perchlorate by EPA Method 314.0
pH by EPA Method 150.1
Total Dissolved Solids by EPA Method 160.1

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV evaluation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
MW-13	pH	129.73 hours	48 hours	J (all detects)	P
MW-10	pH	128.17 hours	48 hours	J (all detects)	P
MW-5	pH	126.42 hours	48 hours	J (all detects)	P
MW-8	pH	124.77 hours	48 hours	J (all detects)	P
MW-7**	pH	123.37 hours	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to technical holding time, data were qualified as estimated in five samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Wet Chemistry - Data Qualification Summary - SDG 15-10263

Sample	Analyte	Flag	A or P	Reason
MW-13 MW-10 MW-5 MW-8 MW-7**	pH	J (all detects)	P	Technical holding time

NASA JPL, 2Q2015
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 15-10263

No Sample Data Qualified in this SDG

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03
File ID: Tiamo050415-049
Sampled: 04/29/15 09:05
Prepared: 05/04/15 12:00
Analyzed: 05/04/15 17:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0024
Sequence: 1507219
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	210	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	180	2	D	SM-2320B

6/11/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-04
File ID: Tiamo050415-050
Sampled: 04/29/15 10:55
Prepared: 05/04/15 12:00
Analyzed: 05/04/15 17:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0024
Sequence: 1507219
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	250	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	210	1		SM-2320B

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BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID: Tiamo050415-051
Sampled: 04/29/15 12:40
Prepared: 05/04/15 12:00
Analyzed: 05/04/15 17:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0024
Sequence: 1507219
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	180	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	150	1		SM-2320B

6/11/15

Tidewater Inc.
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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: Tiamo050415-052
Sampled: 04/29/15 14:10
Prepared: 05/04/15 12:00
Analyzed: 05/04/15 17:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0024
Sequence: 1507219
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	230	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
--	Total Alkalinity as CaCO3	190	1		SM-2320B

6/11/15

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03
File ID: 150430 0025 CR6-149
Sampled: 04/29/15 09:05
Prepared: 04/30/15 00:25
Analyzed: 04/30/15 02:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0202
Sequence: 1507117
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

6/1/15

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-04
File ID: 150430 0025 CR6-150
Sampled: 04/29/15 10:55
Prepared: 04/30/15 00:25
Analyzed: 04/30/15 02:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0202
Sequence: 1507117
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0035	5	UD	EPA-7196

6/1/15

BC Laboratories, Inc.
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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/29/2015 4:03:55PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. 2015 Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID: 150430 0025 CR6-151
Sampled: 04/29/15 12:40
Prepared: 04/30/15 00:25
Analyzed: 04/30/15 02:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0202
Sequence: 1507117
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0048	5	JD	EPA-7196

6/16/15

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: 150430 0025 CR6-152
Sampled: 04/29/15 14:10
Prepared: 04/30/15 00:25
Analyzed: 04/30/15 02:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0202
Sequence: 1507117
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0066	5	JD	EPA-7196

6/11/15

BC Laboratories, Inc.
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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-365.1

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID: 150430 0901 PO4-050
Sampled: 04/29/15 12:40
Prepared: 04/30/15 09:01
Analyzed: 04/30/15 09:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0223
Sequence: 1507192
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.0082	1	J	EPA-365.1

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-365.1

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: 150430 0901 PO4-061
Sampled: 04/29/15 14:10
Prepared: 04/30/15 09:01
Analyzed: 04/30/15 09:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0223
Sequence: 1507192
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.027	1		EPA-365.1

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03
File ID: 150430 0933 NO2-101
Sampled: 04/29/15 09:05
Prepared: 04/30/15 09:33
Analyzed: 04/30/15 09:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0230
Sequence: 1507186
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-04
File ID: 150430 0933 NO2-102
Sampled: 04/29/15 10:55
Prepared: 04/30/15 09:33
Analyzed: 04/30/15 09:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0230
Sequence: 1507186
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID: 150430 0933 NO2-082
Sampled: 04/29/15 12:40
Prepared: 04/30/15 09:33
Analyzed: 04/30/15 09:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0230
Sequence: 1507186
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: 150430 0933 NO2-085
Sampled: 04/29/15 14:10
Prepared: 04/30/15 09:33
Analyzed: 04/30/15 09:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0230
Sequence: 1507186
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-13

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-02RE1
File ID: F051415.seq-68.0000.txt
Sampled: 04/29/15 07:20
Prepared: 05/15/15 15:00
Analyzed: 05/18/15 08:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1584
Sequence: 1508007
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1500	100	D	EPA-314.0

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03
File ID: F051215.seq-97.0000.txt
Sampled: 04/29/15 09:05
Prepared: 05/12/15 17:00
Analyzed: 05/14/15 02:14
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1105
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.8	1		EPA-314.0

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-04
File ID: F051215.seq-98.0000.txt
Sampled: 04/29/15 10:55
Prepared: 05/12/15 17:00
Analyzed: 05/14/15 02:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1105
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.1	1		EPA-314.0

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05RE2
File ID: F051415.seq-89.0000.txt
Sampled: 04/29/15 12:40
Prepared: 05/15/15 15:00
Analyzed: 05/18/15 14:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1584
Sequence: 1508007
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	71	5	D	EPA-314.0

6/11/15 g

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: F051215.seq-100.0000.txt
Sampled: 04/29/15 14:10
Prepared: 05/12/15 17:00
Analyzed: 05/14/15 02:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1105
Sequence: 1507790
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	7.4	1		EPA-314.0

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Tidewater Inc.
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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03RE1
File ID: H043015.seq-23
Sampled: 04/29/15 09:05
Prepared: 04/30/15 01:00
Analyzed: 04/30/15 08:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2599
Sequence: 1507685
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	130	1		EPA-300.0
14797-55-8	Nitrate as N	16	1		EPA-300.0
14808-79-8	Sulfate	200	1		EPA-300.0

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Tidewater Inc.
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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-04
File ID: H043015.seq-18
Sampled: 04/29/15 10:55
Prepared: 04/30/15 01:00
Analyzed: 04/30/15 06:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2599
Sequence: 1507685
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	50	1		EPA-300.0
14797-55-8	Nitrate as N	6.1	1		EPA-300.0
14808-79-8	Sulfate	71	1		EPA-300.0

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID: H043015.seq-19
Sampled: 04/29/15 12:40
Prepared: 04/30/15 01:00
Analyzed: 04/30/15 06:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2599
Sequence: 1507685
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	58	1		EPA-300.0
14797-55-8	Nitrate as N	1.6	1		EPA-300.0
14808-79-8	Sulfate	41	1		EPA-300.0

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: H043015.seq-20
Sampled: 04/29/15 14:10
Prepared: 04/30/15 01:00
Analyzed: 04/30/15 07:05
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYD2599
Sequence: 1507685
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	87	1		EPA-300.0
14797-55-8	Nitrate as N	1.3	1		EPA-300.0
14808-79-8	Sulfate	49	1		EPA-300.0

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03
File ID:
Sampled: 04/29/15 09:05
Prepared: 05/01/15 14:00
Analyzed: 05/01/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0100
Sequence: 1507139
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	850	5	D	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-04
File ID:
Sampled: 04/29/15 10:55
Prepared: 05/01/15 14:00
Analyzed: 05/01/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0100
Sequence: 1507139
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	490	2	D	EPA-160.1

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Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID:
Sampled: 04/29/15 12:40
Prepared: 05/01/15 14:00
Analyzed: 05/01/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0100
Sequence: 1507139
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	370	2	D	EPA-160.1

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID:
Sampled: 04/29/15 14:10
Prepared: 05/01/15 14:00
Analyzed: 05/01/15 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0100
Sequence: 1507139
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	490	3.33	D	EPA-160.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-13

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-02
File ID: Tiamo050415-047
Sampled: 04/29/15 07:20
Prepared: 05/04/15 12:00
Analyzed: 05/04/15 17:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0024
Sequence: 1507219
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
----	pH	7.44	1	J	EPA-150.1

6/11/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-10

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-03
File ID: Tiamo050415-049
Sampled: 04/29/15 09:05
Prepared: 05/04/15 12:00
Analyzed: 05/04/15 17:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0024
Sequence: 1507219
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.33	1		EPA-150.1

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-5

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-04
File ID: Tiamo050415-050
Sampled: 04/29/15 10:55
Prepared: 05/04/15 12:00
Analyzed: 05/04/15 17:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0024
Sequence: 1507219
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.14	1	J	EPA-150.1

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-8

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-05
File ID: Tiamo050415-051
Sampled: 04/29/15 12:40
Prepared: 05/04/15 12:00
Analyzed: 05/04/15 17:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0024
Sequence: 1507219
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.42	1	J	EPA-150.1

6/11/15 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 4:03:55PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-7

Laboratory: BC Laboratories
SDG: 15-10263
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510263-06
File ID: Tiamo050415-052
Sampled: 04/29/15 14:10
Prepared: 05/04/15 12:00
Analyzed: 05/04/15 17:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0024
Sequence: 1507219
Calibration: UNASSIGNED
Instrument: MET-I

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.49	1	J	EPA-150.1

6/11/15 R

gmH 8

LDC #: 34382A6

SDG #: 15-10263

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6-8-15

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [illegible]

gmH Ortho-Phosphate as P

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), ~~ortho-Phosphate~~ (EPA Method 365.1), Perchlorate (EPA Method 314.0) pH (EPA Method 150.1), TDS (EPA Method 160.1)

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.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD (SDG: 15-10147)
VII.	Duplicate sample analysis	A	DUP (↓)
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Sample result verification	A	Not reviewed for Level III validation.
XI.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	MW-13	1510263-02	Water	04/29/15
2	MW-10	1510263-03	Water	04/29/15
3	MW-5	1510263-04	Water	04/29/15
4	MW-8	1510263-05	Water	04/29/15
5	MW-7**	1510263-06**	Water	04/29/15
6	MW-13DUP	1510263-02DUP	Water	04/29/15
7				
8				
9	PBW1			
10	PBW2			

Notes:

LDC #: 34382A6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

Method: Inorganics (EPA Method See cover)

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

LDC #: 34382A6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 34382A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer:

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1	W	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
2, 3	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
4, 5	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
QC 6	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 34382A6

VALIDATIDN FINDINGS WDRKSHEET
Technical Holding Times

Reviewer: MG
2nd reviewer: α

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:		150.1					
Parameters:		pH					
Technical holding time:		48 hr					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
1	07:20 4-29-15	17:04 5-4-15	(129.73 hr)				J/UJ/P (det
2	09:05 4-29-15	17:15 5-4-15	(128.17)				
3	10:55 4-29-15	17:20 5-4-15	(126.42)				
4	12:40 4-29-15	17:26 5-4-15	(124.77)				
5	14:10 4-29-15	17:32 5-4-15	(123.37)				
6	07:20 4-29-15	17:09 5-4-15	(129.82)				

LDC #: 34382A6

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

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

METHOD: Inorganics, Method see cover

The correlation coefficient (r) for the calibration of PO_4-P was recalculated. Calibration date: 4-28-15

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

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

Type of Analysis	Analyte	Standard ID	Conc. Found (units)	Abs. True (units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration	PO_4-P	Blank	0.00 (mg/L)	0.001	r^2=0.999662	r^2=0.999650	Y
		Standard 1	0.02 ( )	0.014			
		Standard 2	0.10 ( )	0.025			
		Standard 3	0.20 ( )	0.048			
		Standard 4	0.50 ( )	0.120			
		Standard 5	1.00 ( )	0.243			
		Standard 6	2.00 ( )	0.478			
		Standard 7	–	–			
Calibration verification	SO_4	0520 CCV1	104.4 (mg/L)	100.0 (mg/L)	104	104	
Calibration verification	NO_2-N	0935 CCV2	0.478 (mg/L)	0.500 (mg/L)	95.6	95.5	
Calibration verification	Cr VI	0215 CCVC	0.052 (mg/L)	0.050 (mg/L)	104 ~~106~~	105	

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

CALCLC.6

LDC #: 34382A6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Inorganics, Method See cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
0242 LCS	Laboratory control sample	NO_3-N	5.36 (mg/L)	5.00 (mg/L)	107	107	Y
1230 MW-21-2 MS	Matrix spike sample	ClO_4	(SSR-SR) 10.62 (µg/L)	10.101 (µg/L)	105	105	↓
6	Duplicate sample	Total Alk	97.82 (mg/L)	95.84 (mg/L)	2.04	2.04	↓

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

LDC #: 34382A6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: MG
2nd reviewer:

METHOD: Inorganics, Method see cover

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

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for #5, ClO4 reported with a positive detect were recalculated and verified using the following equation:

Concentration = $y = mx + b$

where
$m = 0.0009$
$b = 0.0000$

Recalculation:
$0.007 = 0.0009(x) + 0.000$
$7.778\ \mu g/L = x$

(raw data has insufficient number of decimal places)

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	5	pH	7.49 (pH units)	7.49 (pH units)	Y
		TDS	490	490	
		Cl	87	87	
		ClO4	7.4 (µg/L)	7.8 (µg/L)	
		PO4-P	0.027	0.024	
		Cr VI	0.0066	0.0082	
		total Alk.	190	190	

Note: method 353.2 is N.D. for level IV sample

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 10, 2015

Parameters: Volatiles

Validation Level: Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10365

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-9-4/30/15	1510365-01	Water	04/30/15
MW-1	1510365-02	Water	04/30/15
DUP-8-2Q15	1510365-03	Water	04/30/15
MW-9	1510365-04	Water	04/30/15
MW-15	1510365-05	Water	04/30/15
MW-6	1510365-06	Water	04/30/15
MW-16	1510365-07	Water	04/30/15
MW-6MS	1510365-06MS	Water	04/30/15
MW-6MSD	1510365-06MSD	Water	04/30/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

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 30.0% for all compounds.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-9-4/30/15 was identified as a trip blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples MW-1 and DUP-8-2Q15 were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Volatiles - Data Qualification Summary - SDG 15-10365

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
Volatiles - Laboratory Blank Data Qualification Summary - SDG 15-10365

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-9-4/30/15

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-01	File ID:	04MAY16.D
Sampled:	04/30/15 07:30	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 13:02
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Diehloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-9-4/30/15

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-01	File ID:	04MAY16.D
Sampled:	04/30/15 07:30	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 13:02
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-9-4/30/15

Laboratory:	BC Laboratories		SDG:	15-10365	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510365-01	File ID:	04MAY16.D
Sampled:	04/30/15 07:30	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 13:02
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5700	95.7	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.070	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5900	95.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	201248	6.74	224644	6.73	
Chlorobenzene-d5 (IS)	79289	9.73	90151	9.72	
1,4-Difluorobenzene (IS)	308630	7.52	338382	7.52	

6/4/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-1

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-02	File ID:	04MAY17.D
Sampled:	04/30/15 08:46	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 13:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-1

Laboratory:	BC Laboratories		SDG:	15-10365	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510365-02	File ID:	04MAY17.D
Sampled:	04/30/15 08:46	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 13:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYE0160	Sequence: 1507070	Calibration:	1504017	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-1

Laboratory:	BC Laboratories		SDG:	15-10365	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510365-02	File ID:	04MAY17.D
Sampled:	04/30/15 08:46	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 13:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Diehloroethane-d4 (Surrogate)	10.000	9.1500	91.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9100	99.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7000	97.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	223832	6.73	224644	6.73	
Chlorobenzene-d5 (IS)	89646	9.73	90151	9.72	
1,4-Difluorobenzene (IS)	340167	7.52	338382	7.52	

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

Dup-8-2Q15

Laboratory:	BC Laboratories		SDG:	15-10365	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510365-03	File ID:	04MAY18.D
Sampled:	04/30/15 08:56	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 13:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYE0160	Sequence:	1507070	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15 Q

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

Dup-8-2Q15

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-03	File ID:	04MAY18.D
Sampled:	04/30/15 08:56	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 13:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYE0160	Sequence:	1507070	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

Dup-8-2Q15

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-03	File ID:	04MAY18.D
Sampled:	04/30/15 08:56	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 13:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.0800	90.8	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.000	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1600	91.6	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	228986	6.73	224644	6.73	
Chlorobenzene-d5 (IS)	90136	9.73	90151	9.72	
1,4-Difluorobenzene (IS)	343027	7.52	338382	7.52	

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-9

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-04	File ID:	04MAY19.D
Sampled:	04/30/15 10:20	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 14:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-9

Laboratory:	BC Laboratories		SDG:	15-10365	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510365-04	File ID:	04MAY19.D
Sampled:	04/30/15 10:20	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 14:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-9

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-04	File ID:	04MAY19.D
Sampled:	04/30/15 10:20	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 14:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYE0160	Sequence:	1507070	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.0000	90.0	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7000	97.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3700	93.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	224962	6.73	224644	6.73	
Chlorobenzene-d5 (IS)	86758	9.73	90151	9.72	
1,4-Difluorobenzene (IS)	343783	7.52	338382	7.52	

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-15

Laboratory:	BC Laboratories		SDG:	15-10365	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510365-05	File ID:	04MAY20.D
Sampled:	04/30/15 11:24	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 14:32
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.12	U
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-15

Laboratory:	BC Laboratories		SDG:	15-10365	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510365-05	File ID:	04MAY20.D
Sampled:	04/30/15 11:24	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 14:32
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-15

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-05	File ID:	04MAY20.D
Sampled:	04/30/15 11:24	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 14:32
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BYE0160	Sequence:	1507070	Calibration:	1504017
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	8.5900	85.9	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7600	97.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1400	91.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	231776	6.74	224644	6.73	
Chlorobenzene-d5 (IS)	86880	9.73	90151	9.72	
1,4-Difluorobenzene (IS)	345606	7.52	338382	7.52	

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-6

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-06	File ID:	04MAY15.D
Sampled:	04/30/15 12:41	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 12:39
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	0.14	U
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.66	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.18	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.14	J
156-60-5	trans-1,2-Dichloroethene	1	0.15	J
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-6

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-06	File ID:	04MAY15.D
Sampled:	04/30/15 12:41	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 12:39
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.92	
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	3.8	
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-6

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-06	File ID:	04MAY15.D
Sampled:	04/30/15 12:41	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 12:39
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.3900	93.9	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9600	99.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5500	95.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	223157	6.74	224644	6.73	
Chlorobenzene-d5 (IS)	88477	9.73	90151	9.72	
1,4-Difluorobenzene (IS)	335145	7.52	338382	7.52	

6/14/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-16

Laboratory:	BC Laboratories		SDG:	15-10365	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1510365-07	File ID:	04MAY21.D
Sampled:	04/30/15 13:10	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 14:55
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.083	U
108-86-1	Bromobenzene	1	0.13	U
74-97-5	Bromochloromethane	1	0.24	U
75-27-4	Bromodichloromethane	1	1.1	
75-25-2	Bromoform	1	1.1	
74-83-9	Bromomethane	1	0.25	U
104-51-8	n-Butylbenzene	1	0.11	U
135-98-8	sec-Butylbenzene	1	0.15	U
98-06-6	tert-Butylbenzene	1	0.13	U
56-23-5	Carbon tetrachloride	1	0.18	U
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	1.2	
74-87-3	Chloromethane	1	0.14	U
95-49-8	2-Chlorotoluene	1	0.20	U
106-43-4	4-Chlorotoluene	1	0.15	U
124-48-1	Dibromochloromethane	1	0.74	
96-12-8	1,2-Dibromo-3-chloropropane	1	0.44	U
106-93-4	1,2-Dibromoethane	1	0.16	U
74-95-3	Dibromomethane	1	0.24	U
95-50-1	1,2-Dichlorobenzene	1	0.072	U
541-73-1	1,3-Dichlorobenzene	1	0.15	U
106-46-7	1,4-Dichlorobenzene	1	0.062	U
75-71-8	Dichlorodifluoromethane	1	0.099	U
75-34-3	1,1-Dichloroethane	1	0.11	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.18	U
156-59-2	cis-1,2-Dichloroethene	1	0.085	U
156-60-5	trans-1,2-Dichloroethene	1	0.15	U
78-87-5	1,2-Dichloropropane	1	0.13	U
142-28-9	1,3-Dichloropropane	1	0.086	U
594-20-7	2,2-Dichloropropane	1	0.13	U

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-16

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-07	File ID:	04MAY21.D
Sampled:	04/30/15 13:10	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 14:55
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.085	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.079	U
100-41-4	Ethylbenzene	1	0.098	U
87-68-3	Hexachlorobutadiene	1	0.17	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.12	U
75-09-2	Methylene chloride	1	0.48	U
1634-04-4	Methyl t-butyl ether	1	0.11	U
91-20-3	Naphthalene	1	0.36	U
103-65-1	n-Propylbenzene	1	0.11	U
100-42-5	Styrene	1	0.068	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.18	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	U
108-88-3	Toluene	1	0.093	U
87-61-6	1,2,3-Trichlorobenzene	1	0.16	U
120-82-1	1,2,4-Trichlorobenzene	1	0.19	U
71-55-6	1,1,1-Trichloroethane	1	0.11	U
79-00-5	1,1,2-Trichloroethane	1	0.16	U
79-01-6	Trichloroethene	1	0.085	U
75-69-4	Trichlorofluoromethane	1	0.13	U
96-18-4	1,2,3-Trichloropropane	1	0.24	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.15	U
95-63-6	1,2,4-Trimethylbenzene	1	0.12	U
108-67-8	1,3,5-Trimethylbenzene	1	0.12	U
75-01-4	Vinyl chloride	1	0.12	U
67-64-1	Acetone	1	4.6	U
107-13-1	Acrylonitrile	1	1.2	U
107-05-1	Allyl chloride	1	0.80	U
994-05-8	t-Amyl Methyl ether	1	0.25	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/4/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/27/2015 4:10:02PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-16

Laboratory:	BC Laboratories			SDG:	15-10365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-07	File ID:	04MAY21.D
Sampled:	04/30/15 13:10	Prepared:	05/04/15 08:42	Analyzed:	05/04/15 14:55
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BYE0160 Sequence: 1507070 Calibration: 1504017 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U
80-62-6	Methyl methacrylate	1	1.5	U
76-01-7	Pentachloroethane	1	0.43	U
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.28	U
95-47-6	o-Xylene	1	0.082	U
107-14-2	Chloroacetonitrile	1		U
109-69-3	1-Chlorobutane	1		U
513-88-2	1,1-Dichloropropanone	1		U
96-33-3	Methyl acrylate	1		U
98-95-3	Nitrobenzene	1		U
79-46-9	2-Nitropropane	1		U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.380	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.1400	91.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.8100	88.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	224654	6.74	224644	6.73	
Chlorobenzene-d5 (IS)	90696	9.73	90151	9.72	
1,4-Difluorobenzene (IS)	363227	7.52	338382	7.52	

6/11/15

LDC #: 34382B1

SDG #: 15-10365

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-4-15

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA Method 524.2)

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.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	≤20, r2 / ≤30
IV.	Continuing calibration	A	≤30
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB=1
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	~~N~~ A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	ND	D=2+3
XI.	Internal standards	A	
XII.	Compound quantitation RL/~~LOQ/LODs~~	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	TB-9-4/30/15	1510365-01	Water	04/30/15
2	MW-1	1510365-02	Water	04/30/15
3	DUP-8-2Q15	1510365-03	Water	04/30/15
4	MW-9	1510365-04	Water	04/30/15
5	MW-15	1510365-05	Water	04/30/15
6	MW-6	1510365-06	Water	04/30/15
7	MW-16	1510365-07	Water	04/30/15
8	MW-6MS	1510365-06MS	Water	04/30/15
9	MW-6MSD	1510365-06MSD	Water	04/30/15
10				
11				
12				
13	BYE0160-BLK1			

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 10, 2015

Parameters: 1,4-Dioxane

Validation Level: Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10365

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-16	1510365-07	Water	04/30/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (June 2008). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

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

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

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

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
1,4-Dioxane - Data Qualification Summary - SDG 15-10365

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 15-10365

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 15-10365

No Sample Data Qualified in this SDG

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:30:44AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-16

Laboratory:	BC Laboratories			SDG:	15-I0365
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1510365-07	File ID:	06MAY018.D
Sampled:	04/30/15 13:10	Prepared:	05/05/15 22:15	Analyzed:	05/06/15 15:58
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.96 ml

Batch: BYE0413 Sequence: 1507363 Calibration: 1505005 Instrument: MS-B7

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
123-91-1	1,4-Dioxane	0.96	0.21	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Naphthalene-d8 (Surrogate)	40.000	31.872	79.7	75 - 132	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
1,4-Dioxane-d8 (IS)	484245	3.137	595719	3.142	

* Values outside of QC limits

6/11/15

LDC #: 34382B2c

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-3-15

SDG #: 15-10365

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer:

2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW846 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.	Sample receipt/Technical holding times	A, A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	r2 /≤ 20
IV.	Continuing calibration	A	≤ 20
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	C.S.
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/~~LOQ/LODs~~	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	MW-16	1510365-07	Water	04/30/15
2				
3				
4				
5				

Notes:

	BYE0413-BLK1						

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 11, 2015

Parameters: Metals

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10365

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-1	1510365-02	Water	04/30/15
Dup-8-2Q15	1510365-03	Water	04/30/15
MW-9	1510365-04	Water	04/30/15
MW-15	1510365-05	Water	04/30/15
MW-6	1510365-06	Water	04/30/15
MW-6MSMS	1510365-06MS	Water	04/30/15
MW-6MSDMSD	1510365-06MSD	Water	04/30/15
MW-6DUP	1510365-06DUP	Water	04/30/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium by Environmental Protection Agency (EPA) Methods 200.7 and 200.8

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of ICS analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium	0.54300 ug/L	All samples in SDG 15-10365
ICB/CCB	Iron	21.723 ug/L	All samples in SDG 15-10365
ICB/CCB	Chromium	0.73300 ug/L	MW-1 Dup-8-2Q15 MW-9 MW-15
PB (prep blank)	Calcium Magnesium Sodium	0.027807 mg/L 0.025109 mg/L 0.034664 mg/L	All samples in SDG 15-10365
ICB/CCB	Calcium Sodium	0.045559 mg/L 0.037303 mg/L	MW-1 MW-6
ICB/CCB	Calcium Magnesium Potassium Sodium	0.045559 mg/L 0.028540 mg/L 0.10759 mg/L 0.055673 mg/L	Dup-8-2Q15 MW-9 MW-15

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-1	Chromium	1.0 ug/L	1.0U ug/L
Dup-8-2Q15	Chromium	1.2 ug/L	1.2U ug/L
MW-9	Chromium Iron	2.5 ug/L 65 ug/L	2.5U ug/L 65U ug/L
MW-15	Chromium Iron	1.2 ug/L 11 ug/L	1.2U ug/L 11U ug/L

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For MW-6MSMS/MSD, no data were qualified for Iron, Chromium, and Calcium percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration. Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

IX. ICP Serial Dilution

ICP serial dilution analysis was performed on an associated project sample. The analysis criteria were met.

X. Laboratory Control Samples (LCS)

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

Samples MW-1 and Dup-8-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-1	Dup-8-2Q15	
Arsenic	0.95	0.70U	200
Calcium	55000	56000	2
Chromium	1.0	1.2	18
Lead	0.10U	1.0	200
Magnesium	18000	18000	0
Potassium	3200	3200	0
Sodium	30000	31000	3

XII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

XIII. Sample Result Verification

Raw data were not reviewed for Level III validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to laboratory blank contamination, data were qualified as not detected in four samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Metals - Data Qualification Summary - SDG 15-10365

No Sample Data Qualified in this SDG

NASA JPL, 2Q2015
Metals - Laboratory Blank Data Qualification Summary - SDG 15-10365

Sample	Analyte	Modified Final Concentration	A or P
MW-1	Chromium	1.0U ug/L	A
Dup-8-2Q15	Chromium	1.2U ug/L	A
MW-9	Chromium Iron	2.5U ug/L 65U ug/L	A
MW-15	Chromium Iron	1.2U ug/L 11U ug/L	A

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Reported: 5/29/2015 10:33:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID: PE2_150507-164
Sampled: 04/30/15 08:46
Prepared: 05/07/15 09:30
Analyzed: 05/07/15 20:03
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507541
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	55	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	18	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	30	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

6/11/15

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID: PE2_150507-168
Sampled: 04/30/15 08:56
Prepared: 05/07/15 09:30
Analyzed: 05/07/15 20:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507541
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	56	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	18	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	31	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID: PE2_150507-169
Sampled: 04/30/15 10:20
Prepared: 05/07/15 09:30
Analyzed: 05/07/15 20:15
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507541
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	68	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	22	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	29	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.7	1		EPA-200.7

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID: PE2_150507-170
Sampled: 04/30/15 11:24
Prepared: 05/07/15 09:30
Analyzed: 05/07/15 20:17
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507541
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	68	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	23	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	30	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID: PE2_150507-158
Sampled: 04/30/15 12:41
Prepared: 05/07/15 09:30
Analyzed: 05/07/15 19:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507541
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	140	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	48	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	49	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

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Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID: PE_EL2_150508B-127
Sampled: 04/30/15 08:46
Prepared: 05/07/15 09:00
Analyzed: 05/09/15 01:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0570
Sequence: 1507508
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.95	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.0	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID: PE_EL2_150508B-130
Sampled: 04/30/15 08:56
Prepared: 05/07/15 09:00
Analyzed: 05/09/15 01:52
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0570
Sequence: 1507508
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.2	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	1.0	1		EPA-200.8

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID: PE_EL2_150508B-131
Sampled: 04/30/15 10:20
Prepared: 05/07/15 09:00
Analyzed: 05/09/15 01:55
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0570
Sequence: 1507508
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	2.5	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 5/29/2015 10:33:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID: PE_EL2_150508B-132
Sampled: 04/30/15 11:24
Prepared: 05/07/15 09:00
Analyzed: 05/09/15 01:58
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0570
Sequence: 1507508
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.2	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project Number: 2nd Qtr. 2015
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INORGANIC ANALYSIS DATA SHEET

EPA-200.8

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID: PE_EL2_150508B-089
Sampled: 04/30/15 12:41
Prepared: 05/07/15 09:00
Analyzed: 05/08/15 23:33
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0570
Sequence: 1507508
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.82	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	820	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID: PE2_150508-168
Sampled: 04/30/15 08:46
Prepared: 05/07/15 09:30
Analyzed: 05/08/15 18:29
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507592
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U	EPA-200.7

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Reported: 5/29/2015 10:33:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID: PE2_150508-172
Sampled: 04/30/15 08:56
Prepared: 05/07/15 09:30
Analyzed: 05/08/15 18:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507592
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6.5	1	U	EPA-200.7

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Reported: 5/29/2015 10:33:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID: PE2_150508-173
Sampled: 04/30/15 10:20
Prepared: 05/07/15 09:30
Analyzed: 05/08/15 18:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507592
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	65	1	U	EPA-200.7

6/11/15 Q

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Reported: 5/29/2015 10:33:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID: PE2_150508-174
Sampled: 04/30/15 11:24
Prepared: 05/07/15 09:30
Analyzed: 05/08/15 18:44
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507592
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	11	1	J U	EPA-200.7

6/11/15 g

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INORGANIC ANALYSIS DATA SHEET

EPA-200.7

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID: PE2_150508-162
Sampled: 04/30/15 12:41
Prepared: 05/07/15 09:30
Analyzed: 05/08/15 18:13
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BYE0571
Sequence: 1507592
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	6500	1		EPA-200.7

6/11/15

LDC #: 34382B4a

SDG #: 15-10365

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-8-15

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

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.	Sample receipt/Technical holding times	A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	N	
VII.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD Fe, Cr, Ca - 4x
VIII.	Duplicate sample analysis	A	DUP As ok by difference
IX.	ICP Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	SW	D = 1+2
XII.	Internal Standard (ICP-MS)	N	not reviewed
XIII.	Sample Result Verification	N	
XIV.	Overall Assessment of Data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	MW-1	1510365-02	Water	04/30/15
2	Dup-8-2Q15	1510365-03	Water	04/30/15
3	MW-9	1510365-04	Water	04/30/15
4	MW-15	1510365-05	Water	04/30/15
5	MW-6	1510365-06	Water	04/30/15
6	MW-6MSMS	1510365-06MS	Water	04/30/15
7	MW-6MSDMSD	1510365-06MSD	Water	04/30/15
8	MW-6DUP	1510365-06DUP	Water	04/30/15
9				
10				
11				
12				
13				
14				
15	PBW			

LDC #: 34382B4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: MG
2nd reviewer: ✓

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1→5	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
QC 6→8	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
Analysis Method		
ICP	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
ICP-MS	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN-, ____

Comments: Mercury by CVAA if performed

LDC #: 34382B4a
SDG #: See Cover

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 2
Reviewer: MG
2nd Reviewer: 4

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)
Soil preparation factor applied: NA
Sample Concentration units, unless otherwise noted: ug/L
Associated Samples: all

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	1	2	3	4						
Cr		0.54300		2.715	1.0	1.2	2.5	1.2						
Fe			21.723	108.6			65	11						

Sample Concentration units, unless otherwise noted: ug/L
Associated Samples: 1-4

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Limit	1	2	3	4						
Cr			0.73300	3.665	see PB	see PB	see PB	see PB						

Sample Concentration units, unless otherwise noted: mg/L
Associated Samples: all (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Ca		0.027807		0.139										
Mg		0.025109		0.126										
Na		0.034664		0.173										

Sample Concentration units, unless otherwise noted: mg/L
Associated Samples: 1,5 (>5x)

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Ca			0.045559	0.228										
Na			0.037303	0.187										

LDC #: 34382B4a
SDG #: See Cover
METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)
Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES
Soil preparation factor applied: NA
Associated Samples: 2-4 (>5x)

Reviewer: MG
2nd Reviewer:

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Limit	No Qual's.									
Ca			0.045559	0.228										
Mg			0.028540	0.143										
K			0.10759	0.538										
Na			0.055673	0.278										

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

LDC#: 34382B4a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

Analyte	Concentration (ug/L)		RPD	
	1	2		
Arsenic	0.95	0.70U	200	
Calcium	55000	56000	2	
Chromium	1.0	1.2	18	
Lead	0.10U	1.0	200	
Magnesium	18000	18000	0	
Potassium	3200	3200	0	
Sodium	30000	31000	3	

V:\FIELD DUPLICATES\FD_inorganic\34382B4a.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2015

LDC Report Date: June 11, 2015

Parameters: Wet Chemistry

Validation Level: EPA Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 15-10365

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-1	1510365-02	Water	04/30/15
Dup-8-2Q15	1510365-03	Water	04/30/15
MW-9	1510365-04	Water	04/30/15
MW-15	1510365-05	Water	04/30/15
MW-6	1510365-06	Water	04/30/15
MW-16	1510365-07	Water	04/30/15
MW-9DUP	1510365-04DUP	Water	04/30/15
MW-6MSMS	1510365-06MS	Water	04/30/15
MW-6MSDMSD	1510365-06MSD	Water	04/30/15
MW-6DUP	1510365-06DUP	Water	04/30/15

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (January 2010). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Alkalinity by Standard Method 2320B
Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) Method 300.0
Hexavalent Chromium by EPA SW 846 Method 7196
Nitrite as Nitrogen by EPA Method 353.2
Perchlorate by EPA Method 314.0
pH by EPA Method 150.1
Total Dissolved Solids by EPA Method 160.1

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

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.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
MW-1	pH	120.20 hours	48 hours	J (all detects)	P
Dup-8-2Q15	pH	120.13 hours	48 hours	J (all detects)	P
MW-9	pH	119.12 hours	48 hours	J (all detects)	P
MW-15	pH	118.27 hours	48 hours	J (all detects)	P
MW-6	pH	117.10 hours	48 hours	J (all detects)	P
MW-16	pH	116.70 hours	48 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples MW-1 and Dup-8-2Q15 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-1	Dup-8-2Q15	
Total alkalinity	190 mg/L	200 mg/L	5
Bicarbonate	230 mg/L	250 mg/L	8
Chloride	15 mg/L	15 mg/L	0
pH	7.67 units	7.69 units	0
Sulfate	27 mg/L	27 mg/L	0
Total dissolved solids	290 mg/L	290 mg/L	0

X. Sample Result Verification

Raw data were not reviewed for Level III validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to technical holding time, data were qualified as estimated in six samples.

The quality control criteria reviewed, as discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation, all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2015
Wet Chemistry - Data Qualification Summary - SDG 15-10365

Sample	Analyte	Flag	A or P	Reason
MW-1 Dup-8-2Q15 MW-9 MW-15 MW-6 MW-16	pH	J (all detects)	P	Technical holding time

NASA JPL, 2Q2015
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 15-10365

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID: Tiamo050515-023
Sampled: 04/30/15 08:46
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 08:58
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0293
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	230	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	190	1		SM-2320B

6/11/15

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Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID: Tiamo050515-024
Sampled: 04/30/15 08:56
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 09:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0293
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	250	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	200	1		SM-2320B

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID: Tiamo050515-029
Sampled: 04/30/15 10:20
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 09:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0294
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	250	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	210	1		SM-2320B

6/11/15 Q

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Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID: Tiamo050515-031
Sampled: 04/30/15 11:24
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 09:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0294
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	270	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
----	Total Alkalinity as CaCO3	220	1		SM-2320B

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID: Tiamo050515-032
Sampled: 04/30/15 12:41
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 09:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0294
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	220	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	180	2	D	SM-2320B

6/11/15 Q

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3761 Attucks Drive
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Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID: B043015A.seq-09
Sampled: 04/30/15 08:46
Prepared: 04/30/15 23:00
Analyzed: 05/01/15 01:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0039
Sequence: 1507032
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	15	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	27	1		EPA-300.0

6/11/15 [illegible]

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID: B043015A.seq-10
Sampled: 04/30/15 08:56
Prepared: 04/30/15 23:00
Analyzed: 05/01/15 01:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0039
Sequence: 1507032
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	15	1		EPA-300.0
14797-55-8	Nitrate as N	0.018	1	U	EPA-300.0
14808-79-8	Sulfate	27	1		EPA-300.0

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID: B043015A.seq-11
Sampled: 04/30/15 10:20
Prepared: 04/30/15 23:00
Analyzed: 05/01/15 02:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0039
Sequence: 1507032
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	20	1		EPA-300.0
14797-55-8	Nitrate as N	0.43	1		EPA-300.0
14808-79-8	Sulfate	55	1		EPA-300.0

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-300.0

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID: B043015A.seq-12
Sampled: 04/30/15 11:24
Prepared: 04/30/15 23:00
Analyzed: 05/01/15 02:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0039
Sequence: 1507032
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	16	1		EPA-300.0
14797-55-8	Nitrate as N	0.28	1		EPA-300.0
14808-79-8	Sulfate	44	1		EPA-300.0

6/11/15

Tidewater Inc.
3761 Attucks Drive
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Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID: B043015A.seq-05
Sampled: 04/30/15 12:41
Prepared: 04/30/15 23:00
Analyzed: 05/01/15 00:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0039
Sequence: 1507032
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	130	2	D	EPA-300.0
14797-55-8	Nitrate as N	13	2	D	EPA-300.0
14808-79-8	Sulfate	210	2	D	EPA-300.0

6/11/15

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Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID: 150501 1550 NO2-086
Sampled: 04/30/15 08:46
Prepared: 05/01/15 15:50
Analyzed: 05/01/15 15:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0242
Sequence: 1507221
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15 a

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID: 150501 1550 NO2-087
Sampled: 04/30/15 08:56
Prepared: 05/01/15 15:50
Analyzed: 05/01/15 15:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0242
Sequence: 1507221
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15 9

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID: 150501 1550 NO2-088
Sampled: 04/30/15 10:20
Prepared: 05/01/15 15:50
Analyzed: 05/01/15 15:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0242
Sequence: 1507221
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/4/15 R

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-353.2

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID: 150501 1550 NO2-089
Sampled: 04/30/15 11:24
Prepared: 05/01/15 15:50
Analyzed: 05/01/15 15:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0242
Sequence: 1507221
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15 9

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID: 150501 1550 NO2-101
Sampled: 04/30/15 12:41
Prepared: 05/01/15 15:50
Analyzed: 05/01/15 15:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0242
Sequence: 1507221
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.012	1	U	EPA-353.2

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-7196

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID: 150501 0036 CR6-009
Sampled: 04/30/15 08:46
Prepared: 05/01/15 00:36
Analyzed: 05/01/15 00:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0238
Sequence: 1507198
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15 9

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Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID: 150501 0036 CR6-010
Sampled: 04/30/15 08:56
Prepared: 05/01/15 00:36
Analyzed: 05/01/15 00:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0238
Sequence: 1507198
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/4/15

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3761 Attucks Drive
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Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID: 150501 0036 CR6-011
Sampled: 04/30/15 10:20
Prepared: 05/01/15 00:36
Analyzed: 05/01/15 00:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0238
Sequence: 1507198
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID: 150501 0036 CR6-012
Sampled: 04/30/15 11:24
Prepared: 05/01/15 00:36
Analyzed: 05/01/15 00:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0238
Sequence: 1507198
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00070	1	U	EPA-7196

6/4/15 Q

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID: 150501 0036 CR6-005
Sampled: 04/30/15 12:41
Prepared: 05/01/15 00:36
Analyzed: 05/01/15 00:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE0238
Sequence: 1507198
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0017	1	J	EPA-7196

6/11/15

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Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID: F051415.seq-8.0000.txt
Sampled: 04/30/15 08:46
Prepared: 05/14/15 15:00
Analyzed: 05/14/15 16:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1312
Sequence: 1508007
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/11/15 9

Tidewater Inc.
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Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID: F051415.seq-9.0000.txt
Sampled: 04/30/15 08:56
Prepared: 05/14/15 15:00
Analyzed: 05/14/15 16:49
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1312
Sequence: 1508007
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-314.0

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID: F051415.seq-10.0000.txt
Sampled: 04/30/15 10:20
Prepared: 05/14/15 15:00
Analyzed: 05/14/15 17:03
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1312
Sequence: 1508007
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/11/15 9

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Tidewater Inc.
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Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID: F051415.seq-11.0000.txt
Sampled: 04/30/15 11:24
Prepared: 05/14/15 15:00
Analyzed: 05/14/15 17:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1312
Sequence: 1508007
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.3	1	U	EPA-314.0

6/11/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID: F051415.seq-12.0000.txt
Sampled: 04/30/15 12:41
Prepared: 05/14/15 15:00
Analyzed: 05/14/15 17:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1312
Sequence: 1508007
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.9	1	J	EPA-314.0

6/11/15 ✓

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-16

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-07
File ID: F051415.seq-18.0000.txt
Sampled: 04/30/15 13:10
Prepared: 05/14/15 15:00
Analyzed: 05/14/15 18:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BYE1312
Sequence: 1508007
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.5	1	J	EPA-314.0

6/11/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID:
Sampled: 04/30/15 08:46
Prepared: 05/04/15 11:00
Analyzed: 05/04/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0158
Sequence: 1507544
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	290	2	D	EPA-160.1

6/11/15 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-160.1

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID:
Sampled: 04/30/15 08:56
Prepared: 05/04/15 11:00
Analyzed: 05/04/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0158
Sequence: 1507544
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
----	Total Dissolved Solids @ 180 C	290	2	D	EPA-160.1

6/11/15 x

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID:
Sampled: 04/30/15 10:20
Prepared: 05/04/15 11:00
Analyzed: 05/04/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0158
Sequence: 1507544
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	340	2	D	EPA-160.1

6/11/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID:
Sampled: 04/30/15 11:24
Prepared: 05/04/15 11:00
Analyzed: 05/04/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0158
Sequence: 1507544
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	330	2	D	EPA-160.1

6/11/15

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID:
Sampled: 04/30/15 12:41
Prepared: 05/04/15 11:00
Analyzed: 05/04/15 11:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BYE0158
Sequence: 1507544
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	810	5	D	EPA-160.1

6/11/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-1

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-02
File ID: Tiamo050515-023
Sampled: 04/30/15 08:46
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 08:58
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0293
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.67	1	J	EPA-150.1

6/11/15 q

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

Dup-8-2Q15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-03
File ID: Tiamo050515-024
Sampled: 04/30/15 08:56
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 09:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0293
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.69	1	J	EPA-150.1

6/11/15

BC Laboratories, Inc.
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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-9

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-04
File ID: Tiamo050515-029
Sampled: 04/30/15 10:20
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 09:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0294
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.36	1	J	EPA-150.1

6/11/15 9

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-15

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-05
File ID: Tiamo050515-031
Sampled: 04/30/15 11:24
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 09:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0294
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.64	1	J	EPA-150.1

6/11/15

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-6

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-06
File ID: Tiamo050515-032
Sampled: 04/30/15 12:41
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 09:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0294
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.25	1	J	EPA-150.1

6/11/15 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/29/2015 10:31:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr. 2015
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET

EPA-150.1

MW-16

Laboratory: BC Laboratories
SDG: 15-10365
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1510365-07
File ID: Tiamo050515-033
Sampled: 04/30/15 13:10
Prepared: 05/05/15 06:30
Analyzed: 05/05/15 09:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BYE0294
Sequence: 1507284
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.64	1	J	EPA-150.1

6/11/15

LDC #: 34382B6

SDG #: 15-10365

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6-8-15

Page: 1 of 1

Reviewer: MG

2nd Reviewer: G

METHOD: (Analyte) Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196), Nitrite-N (EPA Method 353.2), Perchlorate (EPA Method 314.0), pH (EPA Method 150.1), TDS (EPA Method 160.1)

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.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VII.	Duplicate sample analysis	A	DUP
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	D = 1+2
X.	Sample result verification	N	
XI	Overall assessment of data	A	

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; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	MW-1	1510365-02	Water	04/30/15
2	Dup-8-2Q15	1510365-03	Water	04/30/15
3	MW-9	1510365-04	Water	04/30/15
4	MW-15	1510365-05	Water	04/30/15
5	MW-6	1510365-06	Water	04/30/15
6	MW-16	1510365-07	Water	04/30/15
7	MW-9DUP	1510365-04DUP	Water	04/30/15
8	MW-6MSMS	1510365-06MS	Water	04/30/15
9	MW-6MSDMSD	1510365-06MSD	Water	04/30/15
10	MW-6DUP	1510365-06DUP	Water	04/30/15
11				
12	PBW1			
13	PBW2			

Notes:

LDC #: 34382B6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer: G

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→5	W	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
6	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
QC 7	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
8,9	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
10	↓	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 34382B6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: MG
2nd reviewer: A

All circled dates have exceeded the technical holding time.
(Y)N N/A Were all samples preserved as applicable to each method ?
(Y)N N/A Were all cooler temperatures within validation criteria?

Method:		150.1					
Parameters:		pH					
Technical holding time:		48 hr					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
1	08:46 4-30-15	08:58 5-5-15	(120.20 hr)				J/UJ/P (det
2	08:56 4-30-15	09:04 5-5-15	(120.13)				
3	10:20 4-30-15	09:27 5-5-15	(119.12)				
4	11:24 4-30-15	09:40 5-5-15	(118.27)				
5	12:41 4-30-15	09:47 5-5-15	(117.10)				
6	13:10 4-30-15	09:52 5-5-15	(116.70)				
7	10:20 4-30-15	09:34 5-5-15	(119.23)				

LDC# 34382B6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd Reviewer:

Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD	
	1	2		
Total Alkalinity	190	200	5	
Bicarbonate	230	250	8	
Chloride	15	15	0	
pH (pH units)	7.67	7.69	0	
Sulfate	27	27	0	
TDS	290	290	0	

V:\FIELD DUPLICATES\FD_inorganic\34382B6.WPD