

## **ATTACHMENT 1: QUALITY ASSURANCE/QUALITY CONTROL SUMMARY**

This attachment summarizes the field quality assurance, laboratory quality assurance, data verification and data validation procedures utilized for the JPL groundwater monitoring program. Data validation was performed by an independent contractor, Laboratory Data Consultants, Inc. of Carlsbad, California. Data verification and validation indicated that all volatile organic carbon (VOC), perchlorate, and metal results obtained from the second quarter 2014 groundwater monitoring event were acceptable for their intended use of characterizing the aquifer quality.

## **ATTACHMENT 1: QUALITY ASSURANCE/QUALITY CONTROL SUMMARY**

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Field and laboratory QC samples were collected and analyzed to fulfill quality requirements. Proper sample collection and handling procedures were utilized to ensure the integrity of the analytical results. A comprehensive quality assurance and quality control (QA/QC) plan for groundwater monitoring is described in the *Work Plan for Performing a Remedial Investigation/Feasibility Study* (Ebasco, 1993).

### **FIELD QUALITY ASSURANCE/QUALITY CONTROL**

The field QA/QC samples collected for JPL groundwater monitoring included field duplicate samples, equipment rinsate blanks and trip blanks. The QC sample results were used for the qualitative evaluation of the data. Table 1-1 summarizes analytical results for the field quality control samples during the second quarter 2014 groundwater monitoring event.

**Field Duplicate Samples.** Duplicate samples were collected to evaluate the precision of the sample collection process. Duplicate samples for volatile organic compounds (VOCs), perchlorate and metals were collected from monitoring wells MW-1, MW-7, MW-9, MW-12 (Screen 1), MW-14 (Screen 2), MW-15, MW-18 (Screen 3) and MW-24 (Screen 2). The analytical results for the field duplicate samples were comparable to the results of the original groundwater samples for VOCs (Table 1) and Metals (Table 2).

**Equipment Rinsate Blanks.** Equipment rinsate blanks were collected each day that non-dedicated sampling equipment was used. The equipment rinsate blanks, consisting of distilled water run through the sampling equipment after decontamination, were analyzed for all contaminants of concern to monitor possible cross-contamination of the samples due to inadequate decontamination. Toluene was detected at a low level (0.17)  $\mu\text{g/L}$  in one equipment rinsate blank. The detection was below the reporting limit of 0.5  $\mu\text{g/L}$  and toluene was not detected in any monitoring wells during the second quarter 2014 groundwater monitoring event. The source of the blank contamination could not be determined. Detected concentrations in the equipment blank were compared to the detected concentrations in the associated monitoring wells during the data validation process to determine if data validation qualifiers were necessary. No other contaminants or TICs were detected in the equipment blanks as shown in Table 1-1.

**Trip Blanks.** Trip blanks, which consisted of reagent-grade water in vials transported with the sample bottles to and from the field, were submitted to the laboratory with each shipment of groundwater samples. Trip blanks were used to help identify cross-contamination of groundwater samples during transport and sample handling procedures. No VOC contaminants or TICs were detected in the trip blanks as shown in Table 1-1.

**Source Blank.** Three source blanks which consisted of distilled water used by sampling personnel for equipment decontamination were collected during the sampling event. O-xylene was detected at a low level (0.09)  $\mu\text{g/L}$  in one source blank. The detection was below the reporting limit of 0.5  $\mu\text{g/L}$  and O-xylene was not detected in any monitoring



wells during the second quarter 2014 groundwater monitoring event. The source of the contamination could not be determined. This QC sample serves as a check for any contamination present in the source water. Detected concentrations in the source blank were compared to the detected concentrations in the associated monitoring wells during the data validation process to determine if data validation qualifiers were necessary. No other VOC contaminants or TICs were detected in the source blanks as shown in Table 1-1.

#### **LABORATORY QUALITY ASSURANCE/QUALITY CONTROL**

Laboratory QC samples included surrogate compounds (for VOC analyses), matrix spike samples, blank spike samples, and method blanks. The results of the laboratory QC samples were used by the laboratory to determine the accuracy and precision of the analytical techniques, and to identify anomalous results due to laboratory contamination or instrument malfunction.

#### **DATA VERIFICATION AND VALIDATION**

The purpose of data verification and validation is to assure that the data collected meet the data quality objectives (DQOs) outlined in the Quality Assurance Project Plan of the Groundwater Monitoring Plan (Ebasco, 1993).

**Data Verification.** Data verification is a review of the analytical data that includes confirming that the sample identification numbers on the laboratory reports match those on the chain-of-custody records. Data verification also includes a review of the analytical data reports to confirm that all samples were analyzed and all required analytes were quantified for each sample.

**Data Validation.** Data validation is a systematic review of the analytical data to determine the compliance with established method performance criteria. Validation of a data package included review of the technical holding time requirements, review of sample preparation, review of the initial and continuing calibration data, review and recalculation of the laboratory QC sample data, review of the equipment performance, reconciliation of the raw data with the reduced results, identification of data anomalies, and qualification of data to identify data usability limitations.

Data validation was performed by an independent contractor, Laboratory Data Consultants, Inc. (LDC) of Carlsbad, CA. All of the data provided by BC Laboratories, Inc., of Bakersfield, California were validated. Ninety percent of the data were subjected to Level III validation and ten percent of the data were subjected to Level IV validation in accordance with the EPA Contract Laboratory Program National Functional Guidelines for Organic and Inorganic Data Review (U.S. EPA, 2008; 2010).

**Data Validation Qualifiers.** Analytical data were qualified based on the data validation. Data qualifiers were assigned in accordance with EPA guidelines.

All samples were analyzed within the analytical holding times. Data validation indicated that all of the data from the second quarter 2014 groundwater monitoring event were acceptable for their intended use of characterizing aquifer quality.

The data validation reports are included in Attachment 2.

## REFERENCES

- Ebasco. 1993. *Work Plan for Performing a Remedial Investigation/Feasibility Study*. National Aeronautics and Space Administration Jet Propulsion Laboratory, Pasadena, California. December.
- U.S. EPA. 2008. *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. June.
- U.S. EPA. 2010. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review*. January.

**TABLE 1-1**  
**SUMMARY OF CONTAMINANTS DETECTED IN QUALITY CONTROL SAMPLES**  
**COLLECTED DURING THE APR/MAY 2014 SAMPLING EVENT**

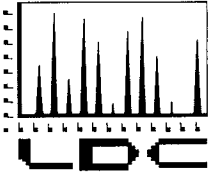
(All concentrations reported in µg/L.)

Blank Type	Sample ID Number	Sampling Location(s)	Total Chromium	Methylene Chloride	1,2,3-Trichloropropane	2-Butanone	Other Organic Compounds	TICs
EQUIPMENT BLANK	EB-1-4/21/14	MW-11, MW-14	3 U	0.5 U	1 U	10 U		
EQUIPMENT BLANK	EB-2-4/22/14	MW-19	0.51 U	0.5 U	1 U	10 U		
EQUIPMENT BLANK	EB-3-4/23/14	MW-3, MW-25	0.68 U	0.5 U	1 U	10 U		
EQUIPMENT BLANK	EB-4-4/24/14	MW-22, MW-24	0.64 U	0.5 U	1 U	10 U		
EQUIPMENT BLANK	EB-5-4/25/14	MW-18, MW-20	1 U	0.5 U	1 U	10 U	Toluene	0.17 J
EQUIPMENT BLANK	EB-6-4/28/14	MW-17, MW-19, MW-26	3 U	0.5 U	1 U	10 U		
EQUIPMENT BLANK	EB-7-4/29/14	MW-12, MW-21	3 U	0.5 U	1 U	10 U		
EQUIPMENT BLANK	EB-8-4/30/14	MW-4, MW-23	0.7 U	0.5 U	1 U	10 U		
SOURCE BLANK	SB-1-4/21/14	--	3 U	0.5 U	1 U	10 U		
SOURCE BLANK	SB-2-4/24/14	--	0.52 U	0.5 U	1 U	10 U		
SOURCE BLANK	SB-3-4/30/14	--	3 U	0.5 U	1 U	10 U	o-Xylene	0.09 J
TRIP BLANK	TB-10-5/2/14	MW-7, MW-8, MW-10	NA	0.5 U	1 U	10 U		
TRIP BLANK	TB-1-4/21/14	MW-11, MW-14	NA	0.5 U	1 U	10 U		
TRIP BLANK	TB-2-4/22/14	MW-19	NA	0.5 U	1 U	10 U		
TRIP BLANK	TB-3-4/23/14	MW-3, MW-25	NA	0.5 U	1 U	10 U		
TRIP BLANK	TB-4-4/24/14	MW-22, MW-24	NA	0.5 U	1 U	10 U		
TRIP BLANK	TB-5-4/25/14	MW-18, MW-20	NA	0.5 U	1 U	10 U		
TRIP BLANK	TB-6-4/28/14	MW-17, MW-19, MW-26	NA	0.5 U	1 U	10 U		
TRIP BLANK	TB-7-4/29/14	MW-12, MW-21	NA	0.5 U	1 U	10 U		
TRIP BLANK	TB-8-4/30/14	MW-4, MW-23	NA	0.5 U	1 U	10 U		
TRIP BLANK	TB-9-5/1/14	W-5, MW-6, MW-9, MW-13, MW-1	NA	0.5 U	1 U	10 U		
<p><b>Notes</b></p> <p>NA Not Analyzed</p> <p>U Analyte was analyzed for but not detected at or above the stated limit</p>								

## **ATTACHMENT 2: DATA VALIDATION REPORTS**

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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.  
5835 Avenida Encinas, Suite 118  
Carlsbad, CA 92008  
ATTN: Mr. David Conner

June 4, 2014

SUBJECT: NASA JPL, 2Q2014, Data Validation

Dear Mr. Conner,

Enclosed is the final validation report for the fractions listed below. This SDG was received on May 22, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project #31854:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
14-08871	Volatiles, Metals, Wet Chemistry

The data validation was performed under EPA Level III 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



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

**Project/Site Name:** NASA JPL, 1Q2014  
**Collection Date:** April 21, 2014  
**LDC Report Date:** June 3, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-08871

**Sample Identification**

TB-1-4/21/14  
EB-1-4/21/14  
SB-1-4/21/14  
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  
Dup-1-2Q14  
MW-14-1  
MW-11-2MS  
MW-11-2MSD  
MW-14-4MS  
MW-14-4MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 18 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## 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
4/8/14 (CCV-23APR04)	Diethyl ether	100	TB-1-4/21/14 EB-1-4/21/14 SB-1-4/21/14 MW-11-5 MW-11-4 MW-11-3 MW-11-2 MW-11-1 MW-14-5 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1 MW-11-2MS MW-11-2MSD BXD1729-BLK	J (all detects) UJ (all non-detects)	P

Date	Compound	%D	Associated Samples	Flag	A or P
4/8/14 (CCV-23APR33)	Dibromochloromethane	30.3	MW-14-4 MW-14-4MS MW-14-4MSD BXD1730-BLK1	J (all detects) UJ (all non-detects)	P
4/8/14 (CCV-23APR34)	Acetone Diethyl ether Pentachloroethane	30.5 100 85.6	MW-14-4 MW-14-4MS MW-14-4MSD BXD1730-BLK1	J (all detects) UJ (all non-detects)	P

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

#### V. Blanks

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

#### VI. Surrogate Spikes

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

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

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

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

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

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

Not applicable.

#### X. Internal Standards

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

#### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

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

## XVI. Field Duplicates

Samples MW-14-2 and Dup-1-2Q14 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-14-2	Dup-1-2Q14	
Chloroform	0.92	0.91	1
1,1-Dichloroethane	0.29	0.28	4
cis-1,2-Dichloroethene	0.37	0.34	8
trans-1,2-Dichloroethene	0.27	0.23	16
Tetrachloroethene	1.0	0.89	12
Trichloroethene	8.5	7.7	10

## XVII. Field Blanks

Sample TB-1-4/21/14 was identified as a trip blank. No volatile contaminants were found.

Sample EB-1-4/21/14 was identified as an equipment blank. No volatile contaminants were found.

Sample SB-1-4/21/14 was identified as a source blank. No volatile contaminants were found.

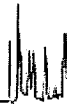
**NASA JPL, 1Q2014**  
**Volatiles - Data Qualification Summary - SDG 14-08871**

SDG	Sample	Compound	Flag	A or P	Reason
14-08871	TB-1-4/21/14 EB-1-4/21/14 SB-1-4/21/14 MW-11-5 MW-11-4 MW-11-3 MW-11-2 MW-11-1 MW-14-5 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1	Diethyl ether	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
14-08871	MW-14-4	Dibromochloromethane Acetone Diethyl ether Pentachloroethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL, 1Q2014**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-08871**

No Sample Data Qualified in this SDG





Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

TB-1-4/21/14

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-01 File ID: 23APR08.D  
 Sampled: 04/21/14 06:30 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 11:37  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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

6/1/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:48:29AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

TB-1-4/21/14

Laboratory: BC Laboratories SDG: 14-08871  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408871-01 File ID: 23APR08.D  
Sampled: 04/21/14 06:30 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 11:37  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>UJ</i>
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	9.7400	97.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9600	99.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2400	92.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	270813	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	94915	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	374120	7.51	370490	7.51	

6/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

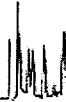
TB-1-4/21/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-01</u>
Sampled:	<u>04/21/14 06:30</u>	Prepared:	<u>04/23/14 08:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

6/9/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:48:29AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

EB-1-4/21/14

Laboratory: BC Laboratories SDG: 14-08871  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408871-02 File ID: 23APR12.D  
Sampled: 04/21/14 06:50 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 13:07  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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

6/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

EB-1-4/21/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-02</u>
Sampled:	<u>04/21/14 06:50</u>	Prepared:	<u>04/23/14 08:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>
		File ID:	<u>23APR12.D</u>
		Analyzed:	<u>04/23/14 13:07</u>
		Initial/Final:	<u>25 ml / 25 ml</u>

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

6/4/14



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-1-4/21/14

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-02 File ID: 23APR12.D  
 Sampled: 04/21/14 06:50 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 13:07  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>WJ</i>
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	9.9100	99.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6400	96.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	268258	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	93580	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	376454	7.51	370490	7.51	

6/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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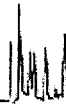
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

EB-1-4/21/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-02</u>
Sampled:	<u>04/21/14 06:50</u>	Prepared:	<u>04/23/14 08:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

6/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

SB-1-4/21/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-03</u>	File ID:	<u>23APR13.D</u>		
Sampled:	<u>04/21/14 06:45</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 13:30</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

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. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

SB-1-4/21/14

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-03 File ID: 23APR13.D  
 Sampled: 04/21/14 06:45 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 13:30  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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

6/4/14



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

SB-1-4/21/14

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-03 File ID: 23APR13.D  
 Sampled: 04/21/14 06:45 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 13:30  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>WJ</i>
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	10.390	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.140	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3000	93.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	265634	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	94010	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	369093	7.51	370490	7.51	

*6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

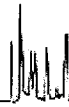
SB-1-4/21/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-03</u>	File ID:	<u>23APR13.D</u>		
Sampled:	<u>04/21/14 06:45</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 13:30</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

6/4/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

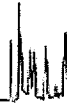
MW-11-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-04</u>	File ID:	<u>23APR14.D</u>		
Sampled:	<u>04/21/14 07:30</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 13:53</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

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

6/4/14





Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-5

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-04 File ID: 23APR14.D  
 Sampled: 04/21/14 07:30 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 13:53  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>WJ</i>
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	10.130	101	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9600	99.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3400	93.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	272401	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	92419	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	376061	7.52	370490	7.51	

*6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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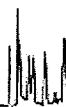
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**MW-11-5**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-04</u>
Sampled:	<u>04/21/14 07:30</u>	Prepared:	<u>04/23/14 08:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

6/9/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-11-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-05</u>	File ID: <u>23APR15.D</u>	
Sampled: <u>04/21/14 08:10</u>	Prepared: <u>04/23/14 08:00</u>	Analyzed: <u>04/23/14 14:15</u>	
Solids:	Preparation: <u>EPA 5030 Water MS</u>	Initial/Final: <u>25 ml / 25 ml</u>	
Batch: <u>BXD1729</u>	Sequence: <u>1405452</u>	Calibration: <u>1404015</u>	Instrument: <u>MS-V5</u>

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

6/4/14



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

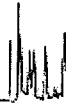
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-4

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-05 File ID: 23APR15.D  
 Sampled: 04/21/14 08:10 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 14:15  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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	0.16	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

6/4/14



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-4

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-05 File ID: 23APR15.D  
 Sampled: 04/21/14 08:10 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 14:15  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	J
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U <i>WJ</i>
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	10.490	105	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9600	99.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3000	93.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	244119	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	85252	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	335536	7.52	370490	7.51	

*6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-05</u>	File ID:	<u>23APR15.D</u>		
Sampled:	<u>04/21/14 08:10</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 14:15</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

6/4/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**MW-11-3**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-06</u>	File ID:	<u>23APR16.D</u>		
Sampled:	<u>04/21/14 08:45</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 14:38</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

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

*6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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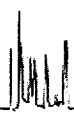
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-06</u>	File ID:	<u>23APR16.D</u>		
Sampled:	<u>04/21/14 08:45</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 14:38</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

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	0.090	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

*6/4/14*



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
EPA-524.2

MW-11-3

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-06 File ID: 23APR16.D  
 Sampled: 04/21/14 08:45 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 14:38  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>US</i>
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	9.9800	99.8	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.0000	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1800	91.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	269929	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	93586	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	368530	7.52	370490	7.51	

*Handwritten signature/initials*  
6/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-06</u>	File ID:	<u>23APR16.D</u>		
Sampled:	<u>04/21/14 08:45</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 14:38</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/4/14*



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-2

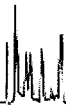
Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-07 File ID: 23APR11.D  
 Sampled: 04/21/14 09:20 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 12:45  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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

*Handwritten signature/initials*







Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
EPA-524.2

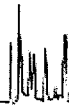
MW-11-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-07</u>	File ID:	<u>23APR11.D</u>		
Sampled:	<u>04/21/14 09:20</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 12:45</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 5/14/14*





Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

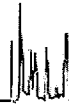
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-1

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-08 File ID: 23APR17.D  
 Sampled: 04/21/14 10:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 15:00  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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

*Handwritten signature/initials: JG/4/14*



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-1

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-08 File ID: 23APR17.D  
 Sampled: 04/21/14 10:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 15:00  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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

*Handwritten signature/initials*



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-11-1

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-08 File ID: 23APR17.D  
 Sampled: 04/21/14 10:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 15:00  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>WS</i>
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	9.9900	99.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9800	89.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	268457	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	94461	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	367115	7.51	370490	7.51	

*Handwritten signature/initials: 6/1/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-11-1
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Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-08</u>	File ID:	<u>23APR17.D</u>		
Sampled:	<u>04/21/14 10:00</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 15:00</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/4/14*



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

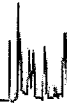
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-14-5

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-09 File ID: 23APR18.D  
 Sampled: 04/21/14 11:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 15:23  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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	0.25	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

*Handwritten signature/initials*



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-14-5

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-09 File ID: 23APR18.D  
 Sampled: 04/21/14 11:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 15:23  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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

*5/6/14*



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-14-5

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-09 File ID: 23APR18.D  
 Sampled: 04/21/14 11:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 15:23  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>UJ</i>
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	10.360	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.060	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3500	93.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	264581	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	91240	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	361207	7.51	370490	7.51	

*K/14/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-14-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-09</u>
Sampled:	<u>04/21/14 11:00</u>	Prepared:	<u>04/23/14 08:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*M/4/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:48:29AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-14-4

Laboratory: BC Laboratories      SDG: 14-08871  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1408871-10      File ID: 23APR38.D  
Sampled: 04/21/14 11:45      Prepared: 04/23/14 08:00      Analyzed: 04/23/14 22:56  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1730      Sequence: 1405452      Calibration: 1404015      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	0.33	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 <i>UJ</i>
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	0.21	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethane	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

*9/6/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:48:29AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-14-4

Laboratory: BC Laboratories      SDG: 14-08871  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1408871-10      File ID: 23APR38.D  
Sampled: 04/21/14 11:45      Prepared: 04/23/14 08:00      Analyzed: 04/23/14 22:56  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1730      Sequence: 1405452      Calibration: 1404015      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	0.39	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	0.42	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 <i>US</i>
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: 5/13/2014 10:48:29AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-14-4

Laboratory: BC Laboratories      SDG: 14-08871  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1408871-10      File ID: 23APR38.D  
Sampled: 04/21/14 11:45      Prepared: 04/23/14 08:00      Analyzed: 04/23/14 22:56  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1730      Sequence: 1405452      Calibration: 1404015      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 <i>US</i>
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 <i>US</i>
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	10.680	107	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.250	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1500	91.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	260735	6.73	263784	6.73	
Chlorobenzene-d5 (IS)	90044	9.73	94467	9.73	
1,4-Difluorobenzene (IS)	350261	7.52	360532	7.51	

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-14-4
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Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-10</u>	File ID:	<u>23APR38.D</u>		
Sampled:	<u>04/21/14 11:45</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 22:56</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature*  
5/14/14





Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-14-3

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-11 File ID: 23APR19.D  
 Sampled: 04/21/14 12:30 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 15:46  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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	0.53	
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	1.6	
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

*Handwritten signature/initials*



Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/13/2014 10:48:29AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr.
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-14-3

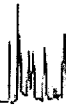
Laboratory: BC Laboratories SDG: 14-08871
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells
Matrix: Water Laboratory ID: 1408871-11 File ID: 23APR19.D
Sampled: 04/21/14 12:30 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 15:46
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml
Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 Instrument: MS-V5

Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Shows surrogate compounds and their recovery percentages.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Lists internal standards used for calibration.

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

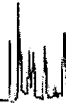
MW-14-3
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Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-11</u>	File ID:	<u>23APR19.D</u>		
Sampled:	<u>04/21/14 12:30</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 15:46</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*9/6/14*





Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

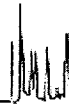
MW-14-2

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-12 File ID: 23APR20.D  
 Sampled: 04/21/14 13:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 16:08  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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	0.92	
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	0.29	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	0.37	J
156-60-5	trans-1,2-Dichloroethene	1	0.27	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

*6/4/14*





Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-14-2

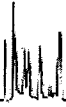
Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-12 File ID: 23APR20.D  
 Sampled: 04/21/14 13:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 16:08  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>WJ</i>
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	10.470	105	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.200	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1900	91.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	264726	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	93065	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	363107	7.51	370490	7.51	

*PC/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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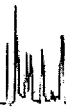
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-14-2
---------

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-12</u>	File ID:	<u>23APR20.D</u>		
Sampled:	<u>04/21/14 13:00</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 16:08</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/4/14*



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

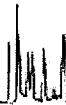
EPA-524.2

Dup-1-2Q14

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-13 File ID: 23APR21.D  
 Sampled: 04/21/14 13:15 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 16:31  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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	0.91	
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	0.28	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	0.34	J
156-60-5	trans-1,2-Dichloroethene	1	0.23	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

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:48:29AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

Dup-1-2Q14

Laboratory: BC Laboratories      SDG: 14-08871  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1408871-13      File ID: 23APR21.D  
Sampled: 04/21/14 13:15      Prepared: 04/23/14 08:00      Analyzed: 04/23/14 16:31  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1729      Sequence: 1405452      Calibration: 1404015      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	0.89	
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	7.7	
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

K  
6/4/14



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

Dup-1-2Q14

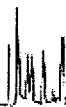
Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-13 File ID: 23APR21.D  
 Sampled: 04/21/14 13:15 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 16:31  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>US</i>
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	10.520	105	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0100	90.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	264791	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	92082	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	364437	7.52	370490	7.51	

*M  
6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

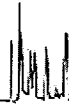
**Dup-1-2Q14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-13</u>
Sampled:	<u>04/21/14 13:15</u>	Prepared:	<u>04/23/14 08:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/4/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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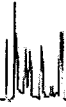
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-14-1

Laboratory: BC Laboratories	SDG: 14-08871
Client: Tidewater Inc.	Project: JPL- GW Monitoring Wells
Matrix: Water	Laboratory ID: 1408871-14
Sampled: 04/21/14 14:00	Prepared: 04/23/14 08:00
Solids:	Preparation: EPA 5030 Water MS
Batch: BXD1729	Sequence: 1405452
	Calibration: 1404015
	Instrument: MS-V5
	File ID: 23APR22.D
	Analyzed: 04/23/14 16:53
	Initial/Final: 25 ml / 25 ml

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	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

6/4/14



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-14-1

Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-14 File ID: 23APR22.D  
 Sampled: 04/21/14 14:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 16:53  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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	0.15	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	0.27	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	2.2	
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

*6/4/14*



Tidewater Inc. Reported: 5/13/2014 10:48:29AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-14-1

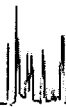
Laboratory: BC Laboratories SDG: 14-08871  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408871-14 File ID: 23APR22.D  
 Sampled: 04/21/14 14:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 16:53  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>KS</i>
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	10.440	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.220	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4400	94.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	264053	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	91665	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	357192	7.52	370490	7.51	

*Handwritten signature/initials*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:48:29AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-14-1

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08871</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408871-14</u>	File ID:	<u>23APR22.D</u>		
Sampled:	<u>04/21/14 14:00</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 16:53</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

16/4/14

LDC #: 31854A1

## VALIDATION COMPLETENESS WORKSHEET

Date: 5/29/14

SDG #: 14-08871

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: BR

2nd Reviewer: J

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.	Technical holding times	A	Sampling dates: 4/21/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD $\leq 20\%$ , $r^2$
IV.	Continuing calibration/ICV	SW	1 CV/ICV $\leq 30\%$
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	FD = 12 + 13
XVII.	Field blanks	ND	TB = 1 EB = 2 SB = 3

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: water

1	TB-1-4/21/14	11	MW-14-3	21	31	BXD1729-BLK
2	EB-1-4/21/14	12	MW-14-2	22	32	BXD1730-BLK
3	SB-1-4/21/14	13	Dup-1-2Q14	23	33	
4	MW-11-5	14	MW-14-1	24	34	
5	MW-11-4	15	MW-11-2MS	25	35	
6	MW-11-3	16	MW-11-2MSD	26	36	
7	MW-11-2	17	MW-14-4MS	27	37	
8	MW-11-1	18	MW-14-4MSD	28	38	
9	MW-14-5	19		29	39	
10	MW-14-4	20		30	40	

## 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 chloride	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. <i>Diethyl ether</i>
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ. <i>Pentachloroethane</i>
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#: 31854A1

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
Reviewer: BT  
2nd Reviewer: [Signature]

**METHOD:** GC MS Volatiles (EPA Method 524.2)

Y N NA Were field duplicate pairs identified in this SDG?

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

Compound	Concentration (µg/L)		RPD
	12	13	
K	0.92	0.91	1
I	0.29	0.28	4
QQQ	0.37	0.34	8
PPP	0.27	0.23	16
AA	1.0	0.89	12
S	8.5	7.7	10

V:\FIELD DUPLICATES\31854A1.wpd



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 21, 2014  
**LDC Report Date:** June 2, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-08871

### Sample Identification

EB-1-4/21/14	MW-11-1MSD
SB-1-4/21/14	MW-11-1DUP
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	
Dup-1-2Q14	
MW-14-1	
MW-11-2MS	
MW-11-2MSD	
MW-11-2DUP	
MW-14-4MS	
MW-14-4MSD	
MW-14-4DUP	
MW-11-1MS	

## Introduction

This data review covers 22 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 200.7 and 200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Iron	20.271 ug/L	EB-1-4/21/14 SB-1-4/21/14 MW-11-5 MW-11-4 MW-11-3 MW-11-2
ICB/CCB	Lead	0.150 ug/L	MW-11-1 MW-14-5 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1
ICB/CCB	Lead	0.119 ug/L	MW-14-4
ICB/CCB	Chromium	0.620 ug/L	EB-1-4/21/14 SB-1-4/21/14 MW-11-5 MW-11-4 MW-11-3
PB (prep blank)	Chromium	0.875 ug/L	MW-11-1 MW-14-5 MW-14-4 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Chromium	1.420 ug/L	MW-11-1 MW-14-5 MW-14-4 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1
PB (prep blank)	Magnesium Sodium	0.034991 mg/L 0.047141 mg/L	EB-1-4/21/14 SB-1-4/21/14 MW-11-5 MW-11-4 MW-11-3 MW-11-2
ICB/CCB	Magnesium Sodium	0.022069 mg/L 0.027664 mg/L	MW-11-2
ICB/CCB	Magnesium	0.036107 mg/L	EB-1-4/21/14 SB-1-4/21/14 MW-11-5 MW-11-4 MW-11-3
PB (prep blank)	Magnesium Sodium	0.10505 mg/L 0.058008 mg/L	MW-11-1 MW-14-5 MW-14-4 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1
ICB/CCB	Magnesium Sodium	0.039838 mg/L 0.058085 mg/L	MW-11-1 MW-14-5 MW-14-4 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1
ICB/CCB	Sodium	0.046769 mg/L	MW-11-1 MW-14-4
ICB/CCB	Sodium	0.055222 mg/L	MW-14-5 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1

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

Method Blank ID	Analyte	Concentration	MRL	Associated Samples	Flag	A or P
CCB2	Iron	- 56.223 ug/L	50.0 ug/L	EB-1-4/21/14 SB-1-4/21/14 MW-11-4	J (all detects) UJ (all non-detects)	A

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-11-4	Iron	13 ug/L	13U ug/L
MW-14-5	Lead	0.66 ug/L	0.66U ug/L
MW-11-4	Chromium	0.93 ug/L	0.93U ug/L
MW-11-3	Chromium	1.0 ug/L	1.0U ug/L
MW-14-4	Chromium	2.1 ug/L	2.1U ug/L
MW-14-2	Chromium	2.2 ug/L	2.2U ug/L
MW-14-1	Chromium	0.72 ug/L	0.72U ug/L
EB-1-4/21/14	Magnesium Sodium	0.031 mg/L 0.037 mg/L	0.031U mg/L 0.037U mg/L
SB-1-4/21/14	Magnesium Sodium	0.040 mg/L 0.040 mg/L	0.040U mg/L 0.040U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## VI. Matrix Spike Analysis

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

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-14-4MS/MSD (MW-11-1 MW-14-5 MW-14-4 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1)	Sodium	-	72.8 (75-125)	-	J (all detects) UJ (all non-detects)	A

For MW-11-2MS/MSD and MW-14-4MS/MSD, no data were qualified for Calcium percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

### VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

### VIII. Laboratory Control Samples (LCS)

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

### IX. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

### X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

### XI. Sample Result Verification

Raw data were not reviewed for this SDG.

### XII. Overall Assessment of Data

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

### XIV. Field Duplicates

Samples MW-14-2 and Dup-1-2Q14 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-14-2	Dup-1-2Q14	
Calcium	140000	140000	0
Chromium	2.2	0.50U	200
Magnesium	49000	51000	4
Potassium	2800	2800	0
Sodium	42000	41000	2

### XV. Field Blanks

Sample EB-1-4/21/14 was identified as an equipment blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration (mg/L)
EB-1-4/21/14	Sodium Magnesium	0.037 0.031

Sample SB-1-4/21/14 was identified as a source blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration (mg/L)
SB-1-4/21/14	Sodium Magnesium	0.040 0.040

**NASA JPL, 2Q2014  
Metals - Data Qualification Summary - SDG 14-08871**

SDG	Sample	Analyte	Flag	A or P	Reason
14-08871	EB-1-4/21/14 SB-1-4/21/14 MW-11-4	Iron	J (all detects) UJ (all non-detects)	A	Negative blank (concentration)
14-08871	MW-11-1 MW-14-5 MW-14-4 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1	Sodium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)

**NASA JPL, 2Q2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 14-08871**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-08871	MW-11-4	Iron	13U ug/L	A
14-08871	MW-14-5	Lead	0.66U ug/L	A
14-08871	MW-11-4	Chromium	0.93U ug/L	A
14-08871	MW-11-3	Chromium	1.0U ug/L	A
14-08871	MW-14-4	Chromium	2.1U ug/L	A
14-08871	MW-14-2	Chromium	2.2U ug/L	A
14-08871	MW-14-1	Chromium	0.72U ug/L	A
14-08871	EB-1-4/21/14	Magnesium Sodium	0.031U mg/L 0.037U mg/L	A
14-08871	SB-1-4/21/14	Magnesium Sodium	0.040U mg/L 0.040U mg/L	A





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02

File ID: PE2 140425R-189

Sampled: 04/21/14 06:50

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:45

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405986

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

15

6/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

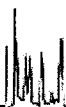
SB-1-4/21/14
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-03</u>	File ID: <u>PE2 140425R-190</u>	
Sampled: <u>04/21/14 06:45</u>	Prepared: <u>04/23/14 08:15</u>	Analyzed: <u>04/25/14 21:48</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD1914</u>	Sequence: <u>1405986</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

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

MS

5/14/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-04

File ID: PE2 140425R-191

Sampled: 04/21/14 07:30

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:51

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405986

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1900	1		EPA-200.7

*M  
6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-05

File ID: PE2 140425R-192

Sampled: 04/21/14 08:10

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:54

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405986

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	13	1	J	EPA-200.7 <i>LS</i>

*5/6/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-11-3**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-06

File ID: PE2 140425R-193

Sampled: 04/21/14 08:45

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:56

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

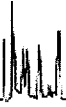
Sequence: 1405986

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	760	1		EPA-200.7

*6/4/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-11-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-07

File ID: PE2 140425R-176

Sampled: 04/21/14 09:20

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:10

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405785

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	420	1		EPA-200.7

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6/4/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08

File ID: PE2 140429R1-101

Sampled: 04/21/14 10:00

Prepared: 04/23/14 08:15

Analyzed: 04/29/14 21:14

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

Sequence: 1406080

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	260	1		EPA-200.7

5/16/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID: PE2 140429R1-104

Sampled: 04/21/14 11:00

Prepared: 04/23/14 08:15

Analyzed: 04/29/14 21:25

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

Sequence: 1406080

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	40	1	J	EPA-200.7

5/6/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10

File ID: PE2\_140429R1-095

Sampled: 04/21/14 11:45

Prepared: 04/23/14 08:15

Analyzed: 04/29/14 20:57

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

Sequence: 1406080

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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5/14/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-3

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-11

File ID: PE2\_140429R1-105

Sampled: 04/21/14 12:30

Prepared: 04/23/14 08:15

Analyzed: 04/29/14 21:28

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

Sequence: 1406080

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	15	1	J	EPA-200.7

*Handwritten signature/initials*  
5/14/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-14-2
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-12</u>	File ID: <u>PE2_140429R1-106</u>	
Sampled: <u>04/21/14 13:00</u>	Prepared: <u>04/23/14 08:15</u>	Analyzed: <u>04/29/14 21:31</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD1915</u>	Sequence: <u>1406080</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

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

*PC/A/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

Dup-1-2Q14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13

File ID: PE2\_140429R1-107

Sampled: 04/21/14 13:15

Prepared: 04/23/14 08:15

Analyzed: 04/29/14 21:34

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

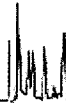
Sequence: 1406080

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

*JC*  
*04/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-14-1**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14

File ID: PE2 140429R1-108

Sampled: 04/21/14 14:00

Prepared: 04/23/14 08:15

Analyzed: 04/29/14 21:37

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

Sequence: 1406080

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	350	1		EPA-200.7

*M/G/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

EB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02

File ID: PE\_EL2 140430-081

Sampled: 04/21/14 06:50

Prepared: 04/24/14 08:20

Analyzed: 04/30/14 15:23

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2050

Sequence: 1405911

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

5/14/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

SB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-03

File ID: PE\_EL2\_140430-082

Sampled: 04/21/14 06:45

Prepared: 04/24/14 08:20

Analyzed: 04/30/14 15:26

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2050

Sequence: 1405911

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

M  
6/4/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-11-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-04

File ID: PE\_EL2\_140430-083

Sampled: 04/21/14 07:30

Prepared: 04/24/14 08:20

Analyzed: 04/30/14 15:29

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2050

Sequence: 1405911

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	5.8	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	4.0	1		EPA-200.8
7439-92-1	Total Recoverable Lead	1.2	1		EPA-200.8

6/4/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-11-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-05

File ID: PE\_EL2 140430-084

Sampled: 04/21/14 08:10

Prepared: 04/24/14 08:20

Analyzed: 04/30/14 15:33

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2050

Sequence: 1405911

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	0.93	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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6/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-11-3

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-06

File ID: PE\_EL2 140430-085

Sampled: 04/21/14 08:45

Prepared: 04/24/14 08:20

Analyzed: 04/30/14 15:36

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2050

Sequence: 1405911

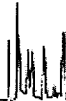
Calibration: UNASSIGNED

Instrument: PE-EL2

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

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5/6/14


 Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

 Reported: 5/15/2014 4:22:11PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**
**EPA-200.8**

MW-11-2

 Laboratory: BC Laboratories

 SDG: 14-08871

 Client: Tidewater Inc.

 Project: JPL- GW Monitoring Wells

 Matrix: Water

 Laboratory ID: 1408871-07

 File ID: PE\_EL2\_140430-068

 Sampled: 04/21/14 09:20

 Prepared: 04/24/14 08:20

 Analyzed: 04/30/14 14:39

 Solids: 0.00

 Preparation: EPA 200.2

 Initial/Final: 50 ml / 50 ml

 Batch: BXD2050

 Sequence: 1405911

 Calibration: UNASSIGNED

 Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.74	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.92	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08

File ID: PE\_EL2\_140429-206

Sampled: 04/21/14 10:00

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 05:59

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2186

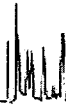
Sequence: 1405910

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.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08RE1

File ID: PE\_EL2\_140501-069

Sampled: 04/21/14 10:00

Prepared: 05/01/14 08:30

Analyzed: 05/01/14 21:30

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0110

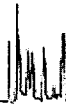
Sequence: 1405989

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

*6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-14-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID: PE EL2 140429-207

Sampled: 04/21/14 11:00

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 06:02

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2186

Sequence: 1405910

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
7439-92-1	Total Recoverable Lead	0.66	1	J	EPA-200.8

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0/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-14-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09RE1

File ID: PE\_EL2\_140501-070

Sampled: 04/21/14 11:00

Prepared: 05/01/14 08:30

Analyzed: 05/01/14 21:33

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0110

Sequence: 1405989

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

*Handwritten signature and date: 5/14/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-14-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10

File ID: PE\_EL2\_140429-195

Sampled: 04/21/14 11:45

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 05:23

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2186

Sequence: 1405910

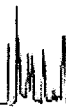
Calibration: UNASSIGNED

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

5/16/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-14-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10RE1

File ID: PE\_EL2 140501-071

Sampled: 04/21/14 11:45

Prepared: 05/01/14 08:30

Analyzed: 05/01/14 21:36

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0110

Sequence: 1405989

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	EPA-200.8

*Handwritten signature/initials*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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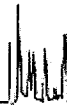
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-14-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-11</u>
Sampled: <u>04/21/14 12:30</u>	Prepared: <u>04/25/14 08:20</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>
Batch: <u>BXD2186</u>	Sequence: <u>1405910</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-EL2</u>
	File ID: <u>PE_EL2 140429-208</u>
	Analyzed: <u>04/30/14 06:05</u>
	Initial/Final: <u>50 ml / 50 ml</u>

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

*Handwritten signature/initials*  
6/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**MW-14-3**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-11RE1

File ID: PE EL2 140501-072

Sampled: 04/21/14 12:30

Prepared: 05/01/14 08:30

Analyzed: 05/01/14 21:39

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0110

Sequence: 1405989

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

*Handwritten signature and date: 6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-14-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12

File ID: PE EL2 140429-209

Sampled: 04/21/14 13:00

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 06:08

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2186

Sequence: 1405910

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

*6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-14-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12RE1

File ID: PE EL2 140501-073

Sampled: 04/21/14 13:00

Prepared: 05/01/14 08:30

Analyzed: 05/01/14 21:43

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0110

Sequence: 1405989

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	2.2	1	J	EPA-200.8

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6/4/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

Dup-1-2Q14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13

File ID: PE\_EL2\_140429-210

Sampled: 04/21/14 13:15

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 06:12

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2186

Sequence: 1405910

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

Dup-1-2Q14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13RE1

File ID: PE\_EL2\_140501-074

Sampled: 04/21/14 13:15

Prepared: 05/01/14 08:30

Analyzed: 05/01/14 21:46

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0110

Sequence: 1405989

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

*Handwritten signature and date: 6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**MW-14-1**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14

File ID: PE\_EL2\_140429-211

Sampled: 04/21/14 14:00

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 06:15

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2186

Sequence: 1405910

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

*Handwritten signature and date: 6/4/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-14-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14RE1

File ID: PE\_EL2 140501-075

Sampled: 04/21/14 14:00

Prepared: 05/01/14 08:30

Analyzed: 05/01/14 21:49

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0110

Sequence: 1405989

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.72	1	J	EPA-200.8

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5/14/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02

File ID: PE2 140425R-189

Sampled: 04/21/14 06:50

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:45

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405986

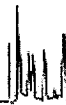
Calibration: UNASSIGNED

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
7440-23-5	Total Recoverable Sodium	0.037	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

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5/14/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02

File ID: PE2 140428-125

Sampled: 04/21/14 06:50

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 20:44

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1406062

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	0.031	1	JB	EPA-200.7

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8/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

SB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-03

File ID: PE2\_140425R-190

Sampled: 04/21/14 06:45

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:48

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405986

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
7440-23-5	Total Recoverable Sodium	0.040	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

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6/4/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

SB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-03

File ID: PE2 140428-126

Sampled: 04/21/14 06:45

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 20:47

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1406062

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	0.040	1	JB	EPA-200.7

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*Handwritten signature and date: 6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-04

File ID: PE2 140425R-191

Sampled: 04/21/14 07:30

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:51

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405986

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
7440-23-5	Total Recoverable Sodium	51	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.2	1		EPA-200.7

5/16/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-04

File ID: PE2\_140428-127

Sampled: 04/21/14 07:30

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 20:49

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1406062

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	2.5	1	B	EPA-200.7

*M  
6/4/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-05

File ID: PE2\_140425R-192

Sampled: 04/21/14 08:10

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:54

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405986

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	13	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	26	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.0	1		EPA-200.7

10/4/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-05</u>	File ID: <u>PE2_140428-128</u>	
Sampled: <u>04/21/14 08:10</u>	Prepared: <u>04/23/14 08:15</u>	Analyzed: <u>04/28/14 20:52</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD1914</u>	Sequence: <u>1406062</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	11	1	B	EPA-200.7

*Handwritten signature and date: 6/4/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-11-3**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-06

File ID: PE2\_140425R-193

Sampled: 04/21/14 08:45

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:56

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405986

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	40	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

*9/6/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-3

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-06

File ID: PE2 140428-129

Sampled: 04/21/14 08:45

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 20:55

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence:

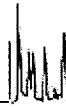
1406062

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	13	1	B	EPA-200.7

*Handwritten signature and date: 5/14/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-07

File ID: PE2\_140425R-176

Sampled: 04/21/14 09:20

Prepared: 04/23/14 08:15

Analyzed: 04/25/14 21:10

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1914

Sequence: 1405785

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	18	1	B	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

*Handwritten signature and date: 6/4/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08

File ID: PE2\_140428-141

Sampled: 04/21/14 10:00

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 21:29

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

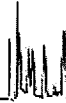
Sequence: 1406079

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
7440-23-5	Total Recoverable Sodium	24	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

*Handwritten signature and date: 5/14/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08RE1

File ID: PE2\_140506-190

Sampled: 04/21/14 10:00

Prepared: 05/06/14 08:30

Analyzed: 05/06/14 19:08

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0471

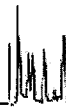
Sequence: 1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	19	1		EPA-200.7

*Handwritten signature/initials*  
5/14/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID: PE2 140428-145

Sampled: 04/21/14 11:00

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 21:40

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

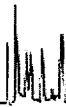
Sequence: 1406079

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
7440-23-5	Total Recoverable Sodium	33	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	2.0	1		EPA-200.7

JG/A/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09RE1

File ID: PE2\_140506-196

Sampled: 04/21/14 11:00

Prepared: 05/06/14 08:30

Analyzed: 05/06/14 19:23

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0471

Sequence: 1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	14	1		EPA-200.7

*PC/4/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10

File ID: PE2 140428-135

Sampled: 04/21/14 11:45

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 21:12

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

Sequence: 1406079

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	74	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	31	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	2.3	1		EPA-200.7

5/14/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10RE1

File ID: PE2\_140506-200

Sampled: 04/21/14 11:45

Prepared: 05/06/14 08:30

Analyzed: 05/06/14 19:33

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0471

Sequence: 1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	27	1		EPA-200.7

*Handwritten signature and date: 5/14/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-3

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-11

File ID: PE2 140428-146

Sampled: 04/21/14 12:30

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 21:43

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

Sequence: 1406079

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
7440-23-5	Total Recoverable Sodium	42	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

9/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-3

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-11RE1

File ID: PE2\_140506-201

Sampled: 04/21/14 12:30

Prepared: 05/06/14 08:30

Analyzed: 05/06/14 19:36

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0471

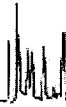
Sequence: 1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	53	1		EPA-200.7

*Handwritten signature/initials*  
6/9/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12

File ID: PE2\_140428-147

Sampled: 04/21/14 13:00

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 21:46

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

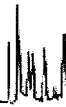
Sequence: 1406079

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
7440-23-5	Total Recoverable Sodium	42	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

5/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-14-2**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12RE1

File ID: PE2\_140506-202

Sampled: 04/21/14 13:00

Prepared: 05/06/14 08:30

Analyzed: 05/06/14 19:38

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0471

Sequence: 1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	49	1		EPA-200.7

*Handwritten signature and date: 6/4/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

Dup-1-2Q14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13

File ID: PE2 140428-148

Sampled: 04/21/14 13:15

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 21:48

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

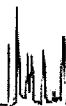
Sequence: 1406079

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
7440-23-5	Total Recoverable Sodium	41	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

*Handwritten signature/initials*  
6/4/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

Dup-1-2Q14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13RE1

File ID: PE2 140506-203

Sampled: 04/21/14 13:15

Prepared: 05/06/14 08:30

Analyzed: 05/06/14 19:41

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0471

Sequence:

1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	51	1		EPA-200.7

*Handwritten signature and date: 5/6/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/15/2014 4:22:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-14-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14

File ID: PE2\_140428-149

Sampled: 04/21/14 14:00

Prepared: 04/23/14 08:15

Analyzed: 04/28/14 21:51

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD1915

Sequence: 1406079

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
7440-23-5	Total Recoverable Sodium	63	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	2.7	1		EPA-200.7

9/6/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/15/2014 4:22:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-14-1
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-14RE1</u>	File ID: <u>PE2 140506-204</u>	
Sampled: <u>04/21/14 14:00</u>	Prepared: <u>05/06/14 08:30</u>	Analyzed: <u>05/06/14 19:43</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0471</u>	Sequence: <u>1406295</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	41	1		EPA-200.7

*9/07/14*

LDC #: 31854A4

## VALIDATION COMPLETENESS WORKSHEET

Date: 5-27-14

SDG #: 14-08871

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: *[Signature]*

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.	Technical holding times	A	Sampling dates: 4-21-14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	SW	MS/MSD #14/15: Ca-4x #17/18: Ca-4x
VII.	Duplicate Sample Analysis	A	DUP #16: Cr OK by difference
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	not reviewed
X.	ICP Serial Dilution	N	not performed
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	D = 11 + 12
XIV.	Field Blanks	SW	EB = 1 SB = 2

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

all water


1	1	EB-1-4/21/14	11	2	MW-14-2	21	3	#7 MSD	31	
2	1	SB-1-4/21/14	12	2	Dup-1-2Q14	22	3	#7 DUP	32	
3	1	MW-11-5	13	2	MW-14-1	23			33	
4	1	MW-11-4	14	1	MW-11-2MS	24			34	
5	1	MW-11-3	15	1	MW-11-2MSD	25			35	
6	1	MW-11-2	16	1	MW-11-2DUP	26			36	
7	2	MW-11-1	17	2	MW-14-4MS	27			37	
8	2	MW-14-5	18	2	MW-14-4MSD	28			38	1 PBW1
9	2	MW-14-4	19	2	MW-14-4DUP	29			39	2 PBW2
10	2	MW-14-3	20	3	#7 MS	30			40	3 PBW3 (Mg)

Notes:



LDC #: 31854A4  
 SDG #: See Cover

**VALIDATION FINDINGS WORKSHEET**  
**PB/ICB/CCB QUALIFIED SAMPLES**

Page: 1 of 3  
 Reviewer: MG  
 2nd Reviewer: 

**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: 1-6

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	4									
Fe			20.271	101.4	13									

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 7,8,10-13

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	8									
Pb			0.150	0.750	0.66									

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 9 (ND)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual.									
Pb			0.119	0.595										

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 1-5

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	4	5								
Cr			0.620	3.10	0.93	1.0								

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 7-13

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	9	11	13							
Cr		0.875	1.420	7.10	2.1	2.2	0.72							

LDC #: 31854A4  
 SDG #: See Cover

**VALIDATION FINDINGS WORKSHEET**  
**PB/ICB/CCB QUALIFIED SAMPLES**

Page: 2 of 3  
 Reviewer: MG  
 2nd Reviewer: A

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Soil preparation factor applied: NA

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1-6

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1	2								
Mg		0.034991		0.175	0.031	0.040								
Na		0.047141		0.236	0.037	0.040								

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 6 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit										
Mg			0.022069	0.110										
Na			0.027664	0.138										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1-5

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1	2								
Mg			0.036107	0.181	see PB	see PB								

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 7-13 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Mg		0.10505	0.039838	0.525										
Na		0.058008	0.058085	0.290										

LDC #: 31854A4  
 SDG #: See Cover

**VALIDATION FINDINGS WORKSHEET**  
**PB/ICB/CCB QUALIFIED SAMPLES**

Page: 3 of 3  
 Reviewer: MG  
 2nd Reviewer: 9

**METHOD:** Trace metals (EPA SW 864 Method 6010B/6020/7000)

Soil preparation factor applied: NA

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 7,9 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Na			0.046769	0.234										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 8,10-13 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Na			0.055222	0.276										

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.







VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (ug/L)		RPD	
	11	12		
Calcium	140000	140000	0	
Chromium	2.2	0.50U	200	
Magnesium	49000	51000	4	
Potassium	2800	2800	0	
Sodium	42000	41000	2	

LDC #: 31854A4

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: MG  
2nd reviewer: [Signature]

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

- N N/A Were field blanks identified in this SDG?
- 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 ( <u>mg/L</u> )
Na	0.037
Mg	0.031

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

Analyte	Concentration Units ( <u>mg/L</u> )
Na	0.040
Mg	0.040

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 21, 2014  
**LDC Report Date:** May 30, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-08871

### Sample Identification

EB-1-4/21/14	MW-14-4MS
SB-1-4/21/14	MW-14-4MSD
MW-11-5	MW-14-4DUP
MW-11-4	MW-14-3DUP
MW-11-3	MW-14-2MS
MW-11-2	MW-14-2MSD
MW-11-1	MW-14-2DUP
MW-14-5	MW-14-1DUP
MW-14-4	
MW-14-3	
MW-14-2	
Dup-1-2Q14	
MW-14-1	
SB-1-4/21/14DUP	
MW-11-2MS	
MW-11-2MSD	
MW-11-2DUP	
MW-11-1MS	
MW-11-1MSD	
MW-11-1DUP	

## Introduction

This data review covers 28 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 353.2 for Nitrite as Nitrogen, EPA SW 846 Method 7196 for Hexavalent Chromium, EPA Method 365.1 for Orthophosphate as Phosphorus, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
Dup-1-2Q14	pH	57.50 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-14-1 MW-14-1DUP	pH	57.25 hours	48 hours	J (all detects) UJ (all non-detects)	P

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

## II. 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. Blanks

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

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Orthophosphate as P	0.0051730 mg/L	MW-11-1
PB (prep blank)	Hexavalent chromium	0.000733 mg/L	MW-14-4 MW-14-3 MW-14-2 Dup-1-2Q14 MW-14-1
PB (prep blank)	Hexavalent chromium	0.000943 mg/L	EB-1-4/21/14 SB-1-4/21/14 MW-11-5 MW-11-4 MW-11-3 MW-11-2 MW-11-1 MW-14-5

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Hexavalent chromium	0.001003 mg/L	MW-14-4 MW-14-3
ICB/CCB	Hexavalent chromium	0.000827 mg/L	EB-1-4/21/14 SB-1-4/21/14 MW-11-5 MW-11-4 MW-11-2
ICB/CCB	Hexavalent chromium	0.000775 mg/L	MW-11-3 MW-11-1 MW-14-5

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

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-11-1	Orthophosphate as P	0.022 mg/L	0.022U mg/L
MW-14-4	Hexavalent chromium	0.0031 mg/L	0.0031U mg/L
MW-14-3	Hexavalent chromium	0.0010 mg/L	0.0010U mg/L
MW-14-2	Hexavalent chromium	0.0016 mg/L	0.0016U mg/L
Dup-1-2Q14	Hexavalent chromium	0.0019 mg/L	0.0019U mg/L
EB-1-4/21/14	Hexavalent chromium	0.00094 mg/L	0.00094U mg/L
MW-11-5	Hexavalent chromium	0.0013 mg/L	0.0013U mg/L
MW-11-4	Hexavalent chromium	0.00097 mg/L	0.00097U mg/L
MW-11-3	Hexavalent chromium	0.00077 mg/L	0.00077U mg/L
MW-11-2	Hexavalent chromium	0.00095 mg/L	0.00095U mg/L
MW-11-1	Hexavalent chromium	0.00073 mg/L	0.00073U mg/L
MW-14-5	Hexavalent chromium	0.0011 mg/L	0.0011U mg/L

## V. Matrix Spike/Matrix Spike Duplicates

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

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

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

## VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

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

## X. Field Duplicates

Samples MW-14-2 and Dup-1-2Q14 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-14-2	Dup-1-2Q14	
Bicarbonate	290 mg/L	290 mg/L	0
Total alkalinity	240 mg/L	240 mg/L	0
Chloride	110 mg/L	120 mg/L	9
Hexavalent chromium	0.0016 mg/L	0.0019 mg/L	17
Nitrate as N	13 mg/L	13 mg/L	0
Nitrite as N	0.35 mg/L	0.36 mg/L	3
Perchlorate	4.1 ug/L	3.8 ug/L	8
pH	7.67 pH units	7.65 pH units	0



Analyte	Concentration		RPD
	MW-14-2	Dup-1-2Q14	
Sulfate	180 mg/L	190 mg/L	5
Total dissolved solids	800 mg/L	800 mg/L	0

## XI. Field Blanks

Sample EB-1-4/21/14 was identified as an equipment blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-1-4/21/14	pH Hexavalent chromium	6.30 pH units 0.00094 mg/L

Sample SB-1-4/21/14 was identified as a source blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration (pH units)
SB-1-4/21/14	pH	5.45

**NASA JPL, 2Q2014**

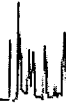
**Wet Chemistry - Data Qualification Summary - SDG 14-08871**

SDG	Sample	Analyte	Flag	A or P	Reason
14-08871	Dup-1-2Q14 MW-14-1	pH	J (all detects) UJ (all non-detects)	P	Technical holding time

**NASA JPL, 2Q2014**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-08871**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-08871	MW-11-1	Orthophosphate as P	0.022U mg/L	A
14-08871	MW-14-4	Hexavalent chromium	0.0031U mg/L	A
14-08871	MW-14-3	Hexavalent chromium	0.0010U mg/L	A
14-08871	MW-14-2	Hexavalent chromium	0.0016U mg/L	A
14-08871	Dup-1-2Q14	Hexavalent chromium	0.0019U mg/L	A
14-08871	EB-1-4/21/14	Hexavalent chromium	0.00094U mg/L	A
14-08871	MW-11-5	Hexavalent chromium	0.0013U mg/L	A
14-08871	MW-11-4	Hexavalent chromium	0.00097U mg/L	A
14-08871	MW-11-3	Hexavalent chromium	0.00077U mg/L	A
14-08871	MW-11-2	Hexavalent chromium	0.00095U mg/L	A
14-08871	MW-11-1	Hexavalent chromium	0.00073U mg/L	A
14-08871	MW-14-5	Hexavalent chromium	0.0011U mg/L	A



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

EB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02

File ID: Tiamo042214-083

Sampled: 04/21/14 06:50

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 16:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD1782

Sequence: 1405596

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	6.30	1		EPA-150.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

SB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-03

File ID: Tiamo042214-089

Sampled: 04/21/14 06:45

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 16:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD1819

Sequence: 1405596

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.45	1		EPA-150.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-11-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-04

File ID: Tiamo042214-091

Sampled: 04/21/14 07:30

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 16:31

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD1819

Sequence: 1405596

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.27	1		EPA-150.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-11-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-05

File ID: Tiamo042214-092

Sampled: 04/21/14 08:10

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 16:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD1819

Sequence: 1405596

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.72	1		EPA-150.1



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

**MW-11-3**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-06</u>
File ID: <u>Tiamo042214-093</u>	
Sampled: <u>04/21/14 08:45</u>	Prepared: <u>04/22/14 12:00</u>
Analyzed: <u>04/22/14 16:42</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD1819</u>	Sequence: <u>1405596</u>
Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.15	1		EPA-150.1



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

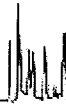
**EPA-150.1**

MW-11-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-07</u>
Sampled: <u>04/21/14 09:20</u>	Prepared: <u>04/22/14 12:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD1819</u>	Sequence: <u>1405596</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MET-1</u>
	File ID: <u>Tiamo042214-094</u>
	Analyzed: <u>04/22/14 16:47</u>
	Initial/Final: <u>50 ml / 50 ml</u>

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





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08

File ID: Tiamo042214-095

Sampled: 04/21/14 10:00

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 16:53

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

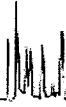
Batch: BXD1819

Sequence: 1405596

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.81	1		EPA-150.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-14-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID: Tiamo042214-097

Sampled: 04/21/14 11:00

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 17:04

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

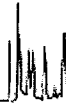
Batch: BXD1819

Sequence: 1405596

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.42	1		EPA-150.1



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-14-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10

File ID: Tiamo042214-099

Sampled: 04/21/14 11:45

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 17:13

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

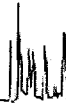
Batch: BXD1819

Sequence: 1405596

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.96	1		EPA-150.1



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

**MW-14-3**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-11</u>	File ID: <u>Tiamo042214-103</u>	
Sampled: <u>04/21/14 12:30</u>	Prepared: <u>04/22/14 12:00</u>	Analyzed: <u>04/22/14 17:32</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD1819</u>	Sequence: <u>1405596</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-14-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12

File ID: Tiamo042214-104

Sampled: 04/21/14 13:00

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 17:37

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

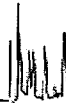
Batch: BXD1819

Sequence: 1405596

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.67	1		EPA-150.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

Dup-1-2Q14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13

File ID: Tiamo042314-082

Sampled: 04/21/14 13:15

Prepared: 04/23/14 18:00

Analyzed: 04/23/14 22:46

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

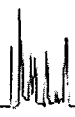
Batch: BXD1963

Sequence: 1405599

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.65	1	J	EPA-150.1



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-14-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14

File ID: Tiamo042314-087

Sampled: 04/21/14 14:00

Prepared: 04/23/14 18:00

Analyzed: 04/23/14 23:08

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

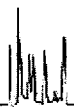
Batch: BXD1964

Sequence: 1405599

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.13	1	J	EPA-150.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-365.1**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08

File ID: 140422 0739 PO4-019

Sampled: 04/21/14 10:00

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 07:39

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1768

Sequence: 1405457

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.022	1	U	EPA-365.1





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

EB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02

File ID: Tiamo042214-083

Sampled: 04/21/14 06:50

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 16:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

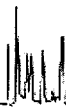
Batch: BXD1782

Sequence: 1405596

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

SB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-03

File ID: Tiamo042214-089

Sampled: 04/21/14 06:45

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 16:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

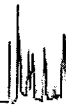
Batch: BXD1819

Sequence: 1405596

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-11-5
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-04</u>	File ID: <u>Tiamo042214-091</u>	
Sampled: <u>04/21/14 07:30</u>	Prepared: <u>04/22/14 12:00</u>	Analyzed: <u>04/22/14 16:31</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD1819</u>	Sequence: <u>1405596</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-11-4**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-05

File ID: Tiamo042214-092

Sampled: 04/21/14 08:10

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 16:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD1819

Sequence: 1405596

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	130	1		SM-2320B
3812-32-6	Carbonate	7.7	1		SM-2320B
---	Total Alkalinity as CaCO3	120	1		SM-2320B



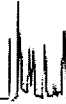
Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-11-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-06</u>
Sampled: <u>04/21/14 08:45</u>	Prepared: <u>04/22/14 12:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD1819</u>	Sequence: <u>1405596</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MET-1</u>
	File ID: <u>Tiamo042214-093</u>
	Analyzed: <u>04/22/14 16:42</u>
	Initial/Final: <u>50 ml / 50 ml</u>

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



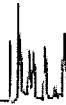
Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-11-2
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-07</u>	File ID: <u>Tiamo042214-094</u>	
Sampled: <u>04/21/14 09:20</u>	Prepared: <u>04/22/14 12:00</u>	Analyzed: <u>04/22/14 16:47</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD1819</u>	Sequence: <u>1405596</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08

File ID: Tiamo042214-095

Sampled: 04/21/14 10:00

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 16:53

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

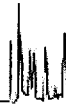
Batch: BXD1819

Sequence: 1405596

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-14-5**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID: Tiamo042214-097

Sampled: 04/21/14 11:00

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 17:04

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD1819

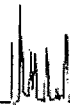
Sequence: 1405596

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	3.5	1		SM-2320B
---	Total Alkalinity as CaCO3	140	1		SM-2320B





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-14-4**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10

File ID: Tiamo042214-099

Sampled: 04/21/14 11:45

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 17:13

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD1819

Sequence: 1405596

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



Tidewater Inc.  
3761 Attucks Drive  
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Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-14-3**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-11

File ID: Tiamo042214-103

Sampled: 04/21/14 12:30

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 17:32

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD1819

Sequence: 1405596

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



Tidewater Inc.  
3761 Attucks Drive  
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Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-14-2**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12

File ID: Tiamo042214-104

Sampled: 04/21/14 13:00

Prepared: 04/22/14 12:00

Analyzed: 04/22/14 17:37

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD1819

Sequence: 1405596

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

**Dup-1-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-13</u>
Sampled: <u>04/21/14 13:15</u>	Prepared: <u>04/23/14 18:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD1963</u>	Sequence: <u>1405599</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MET-1</u>
	File ID: <u>Tiamo042314-082</u>
	Analyzed: <u>04/23/14 22:46</u>
	Initial/Final: <u>50 ml / 50 ml</u>

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-14-1**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14

File ID: Tiamo042314-087

Sampled: 04/21/14 14:00

Prepared: 04/23/14 18:00

Analyzed: 04/23/14 23:08

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

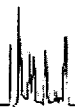
Batch: BXD1964

Sequence: 1405599

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



Tidewater Inc.  
3761 Attucks Drive  
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Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

EB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02

File ID: B042114A.seq-09

Sampled: 04/21/14 06:50

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 02:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1769

Sequence: 1405437

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.067	1	U	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	0.18	1	U	EPA-300.0



Tidewater Inc.  
3761 Attucks Drive  
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Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

SB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-03

File ID: B042114A.seq-10

Sampled: 04/21/14 06:45

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 02:25

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

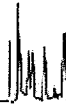
Batch: BXD1769

Sequence: 1405437

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.067	1	U	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	0.18	1	U	EPA-300.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-11-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-04

File ID: B042114A.seq-11

Sampled: 04/21/14 07:30

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 02:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1769

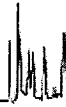
Sequence: 1405437

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	0.089	1	J	EPA-300.0
14808-79-8	Sulfate	17	1		EPA-300.0





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-11-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-05

File ID: B042114A.seq-12

Sampled: 04/21/14 08:10

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 02:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

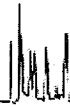
Batch: BXD1769

Sequence: 1405437

Calibration: UNASSIGNED

Instrument: IC2

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	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	1.6	1		EPA-300.0



Tidewater Inc.  
3761 Attucks Drive  
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Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-11-3**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-06

File ID: B042114A.seq-15

Sampled: 04/21/14 08:45

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 03:41

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

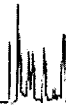
Batch: BXD1769

Sequence: 1405437

Calibration: UNASSIGNED

Instrument: IC2

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	0.049	1	J	EPA-300.0
14808-79-8	Sulfate	21	1		EPA-300.0



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-11-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-07

File ID: B042114A.seq-05

Sampled: 04/21/14 09:20

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 01:09

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1769

Sequence: 1405437

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	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	36	1		EPA-300.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-11-1**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08

File ID: B042114A.seq-16

Sampled: 04/21/14 10:00

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 03:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

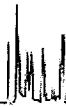
Batch: BXD1769

Sequence: 1405437

Calibration: UNASSIGNED

Instrument: IC2

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	0.28	1		EPA-300.0
14808-79-8	Sulfate	29	1		EPA-300.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-14-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID: B042114A.seq-17

Sampled: 04/21/14 11:00

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 04:11

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1769

Sequence: 1405437

Calibration: UNASSIGNED

Instrument: IC2

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	0.19	1		EPA-300.0
14808-79-8	Sulfate	18	1		EPA-300.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-14-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10

File ID: B042114A.seq-20

Sampled: 04/21/14 11:45

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 04:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1770

Sequence: 1405437

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	60	1		EPA-300.0
14797-55-8	Nitrate as N	12	1		EPA-300.0
14808-79-8	Sulfate	63	1		EPA-300.0



Tidewater Inc.  
3761 Attucks Drive  
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Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-14-3**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-11RE1

File ID: B042114A.seq-35

Sampled: 04/21/14 12:30

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 09:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

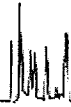
Batch: BXD1770

Sequence: 1405437

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	14	1		EPA-300.0
14808-79-8	Sulfate	160	1		EPA-300.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-14-2**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12RE1

File ID: B042114A.seq-36

Sampled: 04/21/14 13:00

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 09:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1770

Sequence: 1405437

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	180	1		EPA-300.0





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**Dup-1-2Q14**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13RE1

File ID: B042114A.seq-37

Sampled: 04/21/14 13:15

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 09:33

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1770

Sequence: 1405437

Calibration: UNASSIGNED

Instrument: IC2

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-14-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14RE1

File ID: B042114A.seq-38

Sampled: 04/21/14 14:00

Prepared: 04/21/14 23:30

Analyzed: 04/22/14 09:48

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1770

Sequence: 1405437

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	13	1		EPA-300.0
14808-79-8	Sulfate	200	1		EPA-300.0



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

EB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02

File ID: 140422 0817 NO2-033

Sampled: 04/21/14 06:50

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1533

Sequence: 1405462

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

SB-1-4/21/14
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-03</u>	File ID: <u>140422 0817 NO2-034</u>	
Sampled: <u>04/21/14 06:45</u>	Prepared: <u>04/22/14 07:39</u>	Analyzed: <u>04/22/14 08:17</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1533</u>	Sequence: <u>1405462</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-11-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-04

File ID: 140422 0817 NO2-035

Sampled: 04/21/14 07:30

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

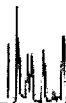
Batch: BXD1533

Sequence: 1405462

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-11-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-05

File ID: 140422 0817 NO2-036

Sampled: 04/21/14 08:10

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1533

Sequence: 1405462

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**MW-11-3**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-06

File ID: 140422 0817 NO2-039

Sampled: 04/21/14 08:45

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

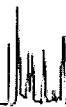
Batch: BXD1533

Sequence: 1405462

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-11-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-07

File ID: 140422 0817 NO2-040

Sampled: 04/21/14 09:20

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1533

Sequence: 1405462

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





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**MW-11-1**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08

File ID: 140422 0817 NO2-029

Sampled: 04/21/14 10:00

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1533

Sequence: 1405462

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-14-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID: 140422 0817 NO2-041

Sampled: 04/21/14 11:00

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1533

Sequence: 1405462

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-14-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-10</u>	File ID: <u>140422 0817 NO2-042</u>	
Sampled: <u>04/21/14 11:45</u>	Prepared: <u>04/22/14 07:39</u>	Analyzed: <u>04/22/14 08:22</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1533</u>	Sequence: <u>1405462</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**MW-14-3**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-11

File ID: 140422 0817 NO2-043

Sampled: 04/21/14 12:30

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

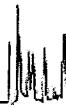
Batch: BXD1533

Sequence: 1405462

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-14-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-12</u>	File ID: <u>140422 0817 NO2-046</u>	
Sampled: <u>04/21/14 13:00</u>	Prepared: <u>04/22/14 07:39</u>	Analyzed: <u>04/22/14 08:23</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1765</u>	Sequence: <u>1405462</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-I</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.35	1		EPA-353.2



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**Dup-1-2Q14**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13

File ID: 140422 0817 NO2-052

Sampled: 04/21/14 13:15

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1765

Sequence: 1405462

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.36	1		EPA-353.2



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-14-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14

File ID: 140422 0817 NO2-053

Sampled: 04/21/14 14:00

Prepared: 04/22/14 07:39

Analyzed: 04/22/14 08:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1765

Sequence: 1405462

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

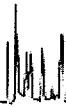
EB-1-4/21/14
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-02</u>	File ID: <u>140421 2152 CR6-040</u>	
Sampled: <u>04/21/14 06:50</u>	Prepared: <u>04/21/14 21:52</u>	Analyzed: <u>04/21/14 22:22</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1825</u>	Sequence: <u>1405456</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00094	1	J	EPA-7196

4





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

SB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-03

File ID: 140421 2152 CR6-041

Sampled: 04/21/14 06:45

Prepared: 04/21/14 21:52

Analyzed: 04/21/14 22:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1825

Sequence: 1405456

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-11-5
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-04</u>	File ID: <u>140421 2152 CR6-042</u>	
Sampled: <u>04/21/14 07:30</u>	Prepared: <u>04/21/14 21:52</u>	Analyzed: <u>04/21/14 22:22</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1825</u>	Sequence: <u>1405456</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

4



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-11-4
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-05</u>	File ID: <u>140421 2152 CR6-043</u>	
Sampled: <u>04/21/14 08:10</u>	Prepared: <u>04/21/14 21:52</u>	Analyzed: <u>04/21/14 22:22</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1825</u>	Sequence: <u>1405456</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00097	1	J	EPA-7196

4



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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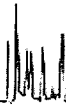
**INORGANIC ANALYSIS DATA SHEET**  
EPA-7196

MW-11-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-06</u>	File ID: <u>140421 2152 CR6-046</u>	
Sampled: <u>04/21/14 08:45</u>	Prepared: <u>04/21/14 21:52</u>	Analyzed: <u>04/21/14 22:26</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1825</u>	Sequence: <u>1405456</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00077	1	J	EPA-7196

4



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-11-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-07

File ID: 140421 2152 CR6-036

Sampled: 04/21/14 09:20

Prepared: 04/21/14 21:52

Analyzed: 04/21/14 22:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1825

Sequence: 1405456

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00095	1	J	EPA-7196

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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08

File ID: 140421 2152 CR6-047

Sampled: 04/21/14 10:00

Prepared: 04/21/14 21:52

Analyzed: 04/21/14 22:26

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1825

Sequence: 1405456

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00073	1	J	EPA-7196

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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**MW-14-5**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID: 140421 2152 CR6-048

Sampled: 04/21/14 11:00

Prepared: 04/21/14 21:52

Analyzed: 04/21/14 22:26

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1825

Sequence: 1405456

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: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-14-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10

File ID: 140421 2152 CR6-020

Sampled: 04/21/14 11:45

Prepared: 04/21/14 21:59

Analyzed: 04/21/14 21:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1827

Sequence: 1405456

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0031	1		EPA-7196





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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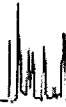
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-14-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-11</u>	File ID: <u>140421 2152 CR6-024</u>	
Sampled: <u>04/21/14 12:30</u>	Prepared: <u>04/21/14 21:59</u>	Analyzed: <u>04/21/14 21:59</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1827</u>	Sequence: <u>1405456</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0010	1	J	EPA-7196

u



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-14-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12

File ID: 140421 2152 CR6-027

Sampled: 04/21/14 13:00

Prepared: 04/21/14 21:59

Analyzed: 04/21/14 22:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1827

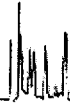
Sequence: 1405456

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

u



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**Dup-1-2Q14**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13

File ID: 140421 2152 CR6-028

Sampled: 04/21/14 13:15

Prepared: 04/21/14 21:59

Analyzed: 04/21/14 22:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1827

Sequence: 1405456

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

u



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-14-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14

File ID: 140421 2152 CR6-029

Sampled: 04/21/14 14:00

Prepared: 04/21/14 21:59

Analyzed: 04/21/14 22:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

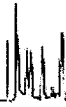
Batch: BXD1827

Sequence: 1405456

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

EB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02RE1

File ID: F042814.seq-32.0000.txt

Sampled: 04/21/14 06:50

Prepared: 04/28/14 19:30

Analyzed: 04/29/14 02:52

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

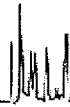
Batch: BXD2508

Sequence: 1405824

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

SB-1-4/21/14

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-03RE1

File ID: F042814.seq-37.0000.txt

Sampled: 04/21/14 06:45

Prepared: 04/28/14 19:30

Analyzed: 04/29/14 21:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

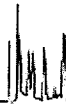
Batch: BXD2508

Sequence: 1405824

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-11-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-04

File ID: F042814.seq-21.0000.txt

Sampled: 04/21/14 07:30

Prepared: 04/28/14 19:30

Analyzed: 04/29/14 00:20

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2508

Sequence:

1405824

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-11-4
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-05RE1</u>	File ID: <u>F050214.seq-15.0000.txt</u>	
Sampled: <u>04/21/14 08:10</u>	Prepared: <u>05/02/14 18:00</u>	Analyzed: <u>05/02/14 22:14</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0275</u>	Sequence: <u>1406111</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

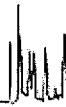
**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-11-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-06</u>
Sampled: <u>04/21/14 08:45</u>	Prepared: <u>04/28/14 19:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2508</u>	Sequence: <u>1405824</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>IC6</u>
	File ID: <u>F042814.seq-23.0000.txt</u>
	Analyzed: <u>04/29/14 00:47</u>
	Initial/Final: <u>20 ml / 20 ml</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-11-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-07RE1

File ID: F042814.seq-28.0000.txt

Sampled: 04/21/14 09:20

Prepared: 04/28/14 19:30

Analyzed: 04/29/14 01:57

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

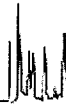
Batch: BXD2508

Sequence: 1405824

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-11-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-08RE1

File ID: F042814.seq-38.0000.txt

Sampled: 04/21/14 10:00

Prepared: 04/28/14 19:30

Analyzed: 04/29/14 21:35

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

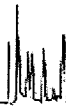
Batch: BXD2508

Sequence: 1405824

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**MW-14-5**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID: F050214.seq-16.0000.txt

Sampled: 04/21/14 11:00

Prepared: 05/02/14 18:00

Analyzed: 05/02/14 22:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

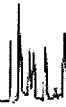
Batch: BXE0275

Sequence: 1406111

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-14-4

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-10

File ID: F050214.seq-17.0000.txt

Sampled: 04/21/14 11:45

Prepared: 05/02/14 18:00

Analyzed: 05/02/14 22:42

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

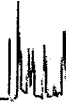
Batch: BXE0275

Sequence: 1406111

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.1	1		EPA-314.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**MW-14-3**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-11

File ID: F050214.seq-24.0000.txt

Sampled: 04/21/14 12:30

Prepared: 05/02/14 18:00

Analyzed: 05/03/14 00:19

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0275

Sequence: 1406111

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	5.9	1		EPA-314.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-14-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12

File ID: F050214.seq-25.0000.txt

Sampled: 04/21/14 13:00

Prepared: 05/02/14 18:00

Analyzed: 05/03/14 00:33

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0275

Sequence: 1406111

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.1	1		EPA-314.0



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**Dup-1-2Q14**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13

File ID: F050214.seq-26.0000.txt

Sampled: 04/21/14 13:15

Prepared: 05/02/14 18:00

Analyzed: 05/03/14 00:47

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0275

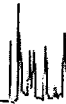
Sequence: 1406111

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





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**MW-14-1**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14

File ID: F050214.seq-27.0000.txt

Sampled: 04/21/14 14:00

Prepared: 05/02/14 18:00

Analyzed: 05/03/14 01:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0275

Sequence: 1406111

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**EB-1-4/21/14**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-02

File ID:

Sampled: 04/21/14 06:50

Prepared: 04/25/14 13:30

Analyzed: 04/25/14 13:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

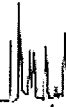
Batch: BXD2240

Sequence: 1405789

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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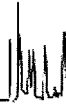
**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

SB-1-4/21/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-03</u>
Sampled: <u>04/21/14 06:45</u>	Prepared: <u>04/25/14 13:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2240</u>	Sequence: <u>1405789</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>

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



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-11-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-04

File ID:

Sampled: 04/21/14 07:30

Prepared: 04/25/14 13:30

Analyzed: 04/25/14 13:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

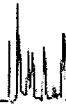
Batch: BXD2240

Sequence: 1405789

Calibration: UNASSIGNED

Instrument: MANUAL

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



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-11-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-05</u>
Sampled: <u>04/21/14 08:10</u>	Prepared: <u>04/25/14 13:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2240</u>	Sequence: <u>1405789</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>
	File ID:
	Analyzed: <u>04/25/14 13:30</u>
	Initial/Final: <u>100 ml / 100 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	150	1		EPA-160.1



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-11-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-06</u>
Sampled: <u>04/21/14 08:45</u>	Prepared: <u>04/25/14 13:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2240</u>	Sequence: <u>1405789</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	280	2	D	EPA-160.1



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-11-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-07</u>
Sampled: <u>04/21/14 09:20</u>	Prepared: <u>04/25/14 13:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2241</u>	Sequence: <u>1405789</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>
	File ID:
	Analyzed: <u>04/25/14 13:30</u>
	Initial/Final: <u>100 ml / 100 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	290	2	D	EPA-160.1



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-11-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-08</u>
Sampled: <u>04/21/14 10:00</u>	Prepared: <u>04/25/14 13:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2241</u>	Sequence: <u>1405789</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>
	File ID:
	Analyzed: <u>04/25/14 13:30</u>
	Initial/Final: <u>100 ml / 100 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	270	2	D	EPA-160.1





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-14-5

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-09

File ID:

Sampled: 04/21/14 11:00

Prepared: 04/25/14 13:30

Analyzed: 04/25/14 13:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

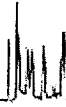
Batch: BXD2241

Sequence: 1405789

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	200	2	D	EPA-160.1



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-14-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-10</u>
Sampled: <u>04/21/14 11:45</u>	Prepared: <u>04/25/14 13:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2241</u>	Sequence: <u>1405789</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>
	File ID:
	Analyzed: <u>04/25/14 13:30</u>
	Initial/Final: <u>100 ml / 100 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	420	3.33	D	EPA-160.1



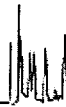
Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:49:04AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-14-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08871</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408871-11</u>
Sampled: <u>04/21/14 12:30</u>	Prepared: <u>04/25/14 13:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2241</u>	Sequence: <u>1405789</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>
	File ID:
	Analyzed: <u>04/25/14 13:30</u>
	Initial/Final: <u>100 ml / 100 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	760	5	D	EPA-160.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-14-2

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-12

File ID:

Sampled: 04/21/14 13:00

Prepared: 04/25/14 13:30

Analyzed: 04/25/14 13:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2241

Sequence: 1405789

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	800	5	D	EPA-160.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**Dup-1-2Q14**

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-13

File ID:

Sampled: 04/21/14 13:15

Prepared: 04/25/14 13:30

Analyzed: 04/25/14 13:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2241

Sequence: 1405789

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	800	5	D	EPA-160.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:49:04AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-14-1

Laboratory: BC Laboratories

SDG: 14-08871

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408871-14

File ID:

Sampled: 04/21/14 14:00

Prepared: 04/25/14 13:30

Analyzed: 04/25/14 13:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2241

Sequence: 1405789

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	840	5	D	EPA-160.1

LDC #: 31854A6

**VALIDATION COMPLETENESS WORKSHEET**

Date: 5-28-14

SDG #: 14-08871

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: h

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Nitrite-N (EPA Method 353.2), Hexavalent Chromium (EPA SW846 Method 7196), 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.	Technical holding times	SW	Sampling dates: 4-21-14
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP #17: Cr VI OK by diff.
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 11 + 12
XI.	Field blanks	SW	EB = 1 SB = 2

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

all water

1	EB-1-4/21/14	11	MW-14-2	21	MW-14-4MS	31	
2	SB-1-4/21/14	12	Dup-1-2Q14	22	MW-14-4MSD	32	
3	MW-11-5	13	MW-14-1	23	MW-14-4DUP	33	
4	MW-11-4	14	SB-1-4/21/14DUP	24	MW-14-3DUP	34	
5	MW-11-3	15	MW-11-2MS	25	MW-14-2MS	35	
6	MW-11-2	16	MW-11-2MSD	26	MW-14-2MSD	36	
7	MW-11-1	17	MW-11-2DUP	27	MW-14-2DUP	37	PBW1
8	MW-14-5	18	MW-11-1MS	28	MW-14-1DUP	38	PBW2
9	MW-14-4	19	MW-11-1MSD	29		39	PBW3
10	MW-14-3	20	MW-11-1DUP	30		40	PBW4

Notes:







**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Inorganics, Method See Cover

**Conc. units:** mg/L

**Associated Samples:** 7

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		7											
PO4-P		0.0051730	0.026	0.022											

**Conc. units:** mg/L

**Associated Samples:** 9-13

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		9	10	11	12								
Cr VI	0.000733		0.00366	0.0031	0.0010	0.0016	0.0019								

**Conc. units:** mg/L

**Associated Samples:** 1-8

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		1	3	4	5	6	7	8					
Cr VI	0.000943		0.00472	0.00094	0.0013	0.00097	0.00077	0.00095	0.00073	0.0011					

**Conc. units:** mg/L

**Associated Samples:** 9,10

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		9	10										
Cr VI		0.001003	0.00502	see PB	see PB										

**Conc. units:** mg/L

**Associated Samples:** 1-4,6

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		1	3	4	6								
Cr VI		0.000827	0.00414	see PB	see PB	see PB	see PB								

## VALIDATION FINDINGS WORKSHEET

### Blanks

**METHOD:** Inorganics, Method See Cover

**Conc. units:** mg/L

**Associated Samples:** 5,7,8

Analyte	Blank ID	Blank ID	Blank Action Limit													
	PB	ICB/CCB (mg/L)		5	7	8										
Cr VI		0.000775	0.00388	see PB	see PB	see PB										

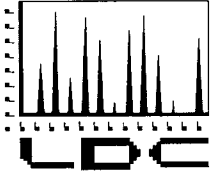
CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD	
	11	12		
Bicarbonate	290	290	0	
Total Alkalinity	240	240	0	
Chloride	110	120	9	
Hexavalent Chromium	0.0016	0.0019	17	
Nitrate as N	13	13	0	
Nitrite as N	0.35	0.36	3	
Perchlorate (ug/L)	4.1	3.8	8	
pH (pH units)	7.67	7.65	0	
Sulfate	180	190	5	
TDS	800	800	0	





# 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 10, 2014

SUBJECT: NASA JPL, 2Q2014, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on May 30, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project #31898:**

**SDG #**

**Fraction**

14-08977, 14-09094 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



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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 22, 2014  
**LDC Report Date:** June 10, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-08977

**Sample Identification**

TB-2-4/22/14  
EB-2-4/22/14  
MW-19-2  
MW-19-1  
MW-19-3



## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## 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
4/23/14	Diethyl ether	100	All samples in SDG 14-08977	J (all detects) UJ (all non-detects)	P

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

## V. Blanks

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

## VI. Surrogate Spikes

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

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

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Sample TB-2-4/22/14 was identified as a trip blank. No volatile contaminants were found.

Sample EB-2-4/22/14 was identified as an equipment blank. No volatile contaminants were found.

**NASA JPL, 2Q2014**

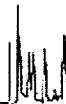
**Volatiles - Data Qualification Summary - SDG 14-08977**

SDG	Sample	Compound	Flag	A or P	Reason
14-08977	TB-2-4/22/14 EB-2-4/22/14 MW-19-2 MW-19-1 MW-19-3	Diethyl ether	J (all detects) UJ (all non-detects)	P	Continuing calibration (CCV %D)

**NASA JPL, 2Q2014**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-08977**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

TB-2-4/22/14

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-01 File ID: 23APR09.D  
Sampled: 04/22/14 11:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 12:00  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

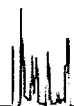
EPA-524.2

TB-2-4/22/14

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-01 File ID: 23APR09.D  
Sampled: 04/22/14 11:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 12:00  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

TB-2-4/22/14

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-01 File ID: 23APR09.D  
Sampled: 04/22/14 11:00 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 12:00  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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 <i>MS</i>
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	10.040	100	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)	266695	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	91706	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	363680	7.51	370490	7.51	

*5/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

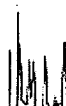
TB-2-4/22/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08977</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408977-01</u>	File ID:	<u>23APR09.D</u>		
Sampled:	<u>04/22/14 11:00</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 12:00</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-2-4/22/14

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-02 File ID: 23APR23.D  
Sampled: 04/22/14 11:10 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 17:16  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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

9/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

EB-2-4/22/14

Laboratory: BC Laboratories SDG: 14-08977  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408977-02 File ID: 23APR23.D  
 Sampled: 04/22/14 11:10 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 17:16  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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

*9/6/10/14*



Tidewater Inc. Reported: 5/13/2014 10:49:27AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-2-4/22/14

Laboratory: BC Laboratories SDG: 14-08977  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408977-02 File ID: 23APR23.D  
 Sampled: 04/22/14 11:10 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 17:16  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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 <i>US</i>
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	10.630	106	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.060	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2000	92.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	261600	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	91374	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	356061	7.52	370490	7.51	

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**EB-2-4/22/14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08977</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408977-02</u>	File ID:	<u>23APR23.D</u>		
Sampled:	<u>04/22/14 11:10</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 17:16</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten:* 6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-2

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-03 File ID: 23APR24.D  
Sampled: 04/22/14 11:40 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 17:38  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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	0.29	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	0.67	
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	0.15	J
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	0.15	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

4/6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-2

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-03 File ID: 23APR24.D  
Sampled: 04/22/14 11:40 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 17:38  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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	0.69	
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	0.43	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

9/6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-2

Laboratory: BC Laboratories SDG: 14-08977  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408977-03 File ID: 23APR24.D  
 Sampled: 04/22/14 11:40 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 17:38  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1729 Sequence: 1405452 Calibration: 1404015 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 <i>KS</i>
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	10.720	107	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.250	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.7300	87.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	260943	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	91264	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	355327	7.52	370490	7.51	

*5/13/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:49:27AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-19-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08977</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408977-03</u>	File ID:	<u>23APR24.D</u>		
Sampled:	<u>04/22/14 11:40</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 17:38</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1729</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*K  
6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-1

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-04 File ID: 23APR25.D  
Sampled: 04/22/14 14:10 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 18:01  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

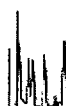
MW-19-1

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-04 File ID: 23APR25.D  
Sampled: 04/22/14 14:10 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 18:01  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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

*Handwritten signature/initials*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

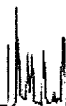
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-3

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-05 File ID: 23APR26.D  
Sampled: 04/22/14 14:45 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 18:24  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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	0.31	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

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-3

Laboratory: BC Laboratories SDG: 14-08977  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1408977-05 File ID: 23APR26.D  
Sampled: 04/22/14 14:45 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 18:24  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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	0.37	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

9/6/10/14



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 5/13/2014 10:49:27AM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-19-3

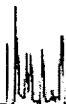
Laboratory: BC Laboratories SDG: 14-08977  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1408977-05 File ID: 23APR26.D  
 Sampled: 04/22/14 14:45 Prepared: 04/23/14 08:00 Analyzed: 04/23/14 18:24  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD1730 Sequence: 1405452 Calibration: 1404015 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 <i>US</i>
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	10.550	106	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9200	89.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	260619	6.73	267518	6.73	
Chlorobenzene-d5 (IS)	90408	9.73	92291	9.73	
1,4-Difluorobenzene (IS)	355582	7.52	370490	7.51	

*Handwritten signature and date: 5/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:49:27AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-19-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-08977</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1408977-05</u>	File ID:	<u>23APR26.D</u>		
Sampled:	<u>04/22/14 14:45</u>	Prepared:	<u>04/23/14 08:00</u>	Analyzed:	<u>04/23/14 18:24</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405452</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature/initials*  
6/10/14

LDC #: 31898A1

## VALIDATION COMPLETENESS WORKSHEET

Date: 6/6/14

SDG #: 14-08977

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: RR

2nd Reviewer: [Signature]

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.	Technical holding times	A	Sampling dates: 4/22/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	R	RSD ≤ 20%, r <sup>2</sup>
IV.	Continuing calibration/ICV	SW	ICV/ICW ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	Client Sp. Cc.
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 1 EB = 2

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: Water

1	TB-2-4/22/14	11		21		31	BX01729-02k1
2	EB-2-4/22/14	12		22		32	
3	MW-19-2	13		23		33	
4	MW-19-1	14		24		34	
5	MW-19-3	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



## 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 chloride	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. <i>Diethyl ether</i>
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.



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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 22, 2014  
**LDC Report Date:** June 6, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-08977

**Sample Identification**

EB-2-4/22/14  
MW-19-2  
MW-19-1  
MW-19-3  
EB-2-4/22/14MS  
EB-2-4/22/14MSD  
EB-2-4/22/14DUP

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 200.7 and 200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron	7.1841 ug/L	All samples in SDG 14-08977
ICB/CCB	Chromium Lead	0.81100 ug/L 0.15000 ug/L	All samples in SDG 14-08977
ICB/CCB	Iron	10.549 ug/L	MW-19-1 MW-19-3

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-2-4/22/14	Chromium Lead	0.51 ug/L 0.17 ug/L	0.51U ug/L 0.17U ug/L
MW-19-2	Chromium	2.9 ug/L	2.9U ug/L
MW-19-1	Chromium	0.57 ug/L	0.57U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-19-3	Chromium Iron	3.0 ug/L 13 ug/L	3.0U ug/L 13U ug/L

#### V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### VI. Matrix Spike Analysis

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

#### VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

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

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

#### IX. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

#### X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

#### XI. Sample Result Verification

Raw data were not reviewed for this SDG.

#### XII. Overall Assessment of Data

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

#### XIV. Field Duplicates

No field duplicates were identified in this SDG.

## XV. Field Blanks

Sample EB-2-4/22/14 was identified as an equipment blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-2-4/22/14	Chromium Lead Calcium	0.51 ug/L 0.17 ug/L 0.035 mg/L

**NASA JPL, 2Q2014**  
**Metals - Data Qualification Summary - SDG 14-08977**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 14-08977**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-08977	EB-2-4/22/14	Chromium Lead	0.51U ug/L 0.17U ug/L	A
14-08977	MW-19-2	Chromium	2.9U ug/L	A
14-08977	MW-19-1	Chromium	0.57U ug/L	A
14-08977	MW-19-3	Chromium Iron	3.0U ug/L 13U ug/L	A



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:50:25AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

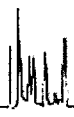
EPA-200.8

EB-2-4/22/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>	
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>	
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-02</u>	File ID: <u>PE_EL2_140429-217</u>
Sampled: <u>04/22/14 11:10</u>	Prepared: <u>04/28/14 08:30</u>	Analyzed: <u>04/30/14 06:34</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>
Batch: <u>BXD2310</u>	Sequence: <u>1405904</u>	Calibration: <u>UNASSIGNED</u>
		Instrument: <u>PE-EL2</u>

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	0.51	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.17	1	J U	EPA-200.8

6/10/14



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Powell, OH 43065

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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-19-2

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-03

File ID: PE\_EL2\_140429-218

Sampled: 04/22/14 11:40

Prepared: 04/28/14 08:30

Analyzed: 04/30/14 06:38

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2310

Sequence: 1405904

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	2.9	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/10/14



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Reported: 5/13/2014 10:50:25AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-19-1

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-04

File ID: PE\_EL2\_140429-219

Sampled: 04/22/14 14:10

Prepared: 04/28/14 08:30

Analyzed: 04/30/14 06:41

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2310

Sequence:

1405904

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	0.57	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Handwritten signature/initials*  
6/10/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/13/2014 10:50:25AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-19-3
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-05</u>
Sampled: <u>04/22/14 14:45</u>	Prepared: <u>04/28/14 08:30</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>
Batch: <u>BXD2310</u>	Sequence: <u>1405904</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-EL2</u>
	File ID: <u>PE_EL2_140429-220</u>
	Analyzed: <u>04/30/14 06:44</u>
	Initial/Final: <u>50 ml / 50 ml</u>

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	3.0	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/10/14*



Tidewater Inc.  
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Reported: 5/13/2014 10:50:25AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-2-4/22/14

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-02

File ID: PE2\_140429R1-137

Sampled: 04/22/14 11:10

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:58

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.035	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.017	1	U	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

*6/10/14*



Tidewater Inc.  
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Powell, OH 43065

Reported: 5/13/2014 10:50:25AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-2

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-03

File ID: PE2 140429R1-143

Sampled: 04/22/14 11:40

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:14

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

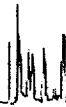
Sequence: 1406082

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	42	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	34	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

*6/10/14*



Tidewater Inc.  
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Powell, OH 43065

Reported: 5/13/2014 10:50:25AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-1

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-04

File ID: PE2\_140429R1-147

Sampled: 04/22/14 14:10

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:26

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

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	15	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

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6/10/14



Tidewater Inc.  
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Reported: 5/13/2014 10:50:25AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-3

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-05

File ID: PE2\_140429R1-148

Sampled: 04/22/14 14:45

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:28

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

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	23	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	27	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.3	1		EPA-200.7

*Handwritten signature and date: 6/10/14*





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Reported: 5/13/2014 10:50:25AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-2-4/22/14

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-02

File ID: PE2\_140429R1-137

Sampled: 04/22/14 11:10

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:58

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

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

6/10/14



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Reported: 5/13/2014 10:50:25AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-19-2

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-03

File ID: PE2\_140429R1-143

Sampled: 04/22/14 11:40

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:14

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

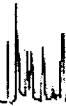
Sequence: 1406082

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1400	1		EPA-200.7

*6/10/14*



Tidewater Inc.  
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Powell, OH 43065

Reported: 5/13/2014 10:50:25AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-1

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-04

File ID: PE2\_140429R1-147

Sampled: 04/22/14 14:10

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:26

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

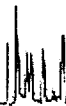
Sequence: 1406082

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/13/2014 10:50:25AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-3

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-05

File ID: PE2 140429R1-148

Sampled: 04/22/14 14:45

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:28

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	13	1	J U	EPA-200.7

6/10/14

LDC #: 31898A4  
 SDG #: 14-08977  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6-4-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**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.	Technical holding times	A	Sampling dates: 4-22-14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	A	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	not reviewed
X.	ICP Serial Dilution	N	not performed
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	SW	EB = 1

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

Validated Samples:  
 all water

1	EB-2-4/22/14	11		21		31	
2	MW-19-2	12		22		32	
3	MW-19-1	13		23		33	
4	MW-19-3	14		24		34	
5	EB-2-4/22/14MS	15		25		35	
6	EB-2-4/22/14MSD	16		26		36	
7	EB-2-4/22/14DUP	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	PBW

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



LDC #: 31898A4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: ug/L

**VALIDATION FINDINGS WORKSHEET**

**PB/ICB/CCB QUALIFIED SAMPLES**

Soil preparation factor applied: NA

Associated Samples: all (>5x or ND)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: 

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1	2	3	4						
Cr			0.81100	4.055	0.51	2.9	0.57	3.0						
Fe		7.1841		35.92				13						
Pb			0.15000	0.750	0.17									

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 3,4

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	4									
Fe			10.549	52.74	see PB									

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.





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 22, 2014  
**LDC Report Date:** June 6, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-08977

### Sample Identification

EB-2-4/22/14  
MW-19-2  
MW-19-1  
MW-19-3  
EB-2-4/22/14MS  
EB-2-4/22/14MSD  
EB-2-4/22/14DUP

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 353.2 for Nitrite as Nitrogen, EPA SW 846 Method 7196 for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB-2-4/22/14	pH	52.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-19-2	pH	51.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-19-1	pH	49.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-19-3	pH	48.75 hours	48 hours	J (all detects) UJ (all non-detects)	P

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

## II. 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. Blanks

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

## V. Matrix Spike/Matrix Spike Duplicates

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

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

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

## VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

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

## X. Field Duplicates

No field duplicates were identified in this SDG.

## XI. Field Blanks

Sample EB-2-4/22/14 was identified as an equipment blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-2-4/22/14	pH Total dissolved solids Chloride Nitrate as N	6.36 pH units 13 mg/L 0.18 mg/L 0.040 mg/L

**NASA JPL, 2Q2014**  
**Wet Chemistry - Data Qualification Summary - SDG 14-08977**

SDG	Sample	Analyte	Flag	A or P	Reason
14-08977	EB-2-4/22/14 MW-19-2 MW-19-1 MW-19-3	pH	J (all detects) UJ (all non-detects)	P	Technical holding time

**NASA JPL, 2Q2014**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-08977**

No Sample Data Qualified in this SDG



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

EB-2-4/22/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-02</u>	File ID: <u>Tiamo042414-064</u>	
Sampled: <u>04/22/14 11:10</u>	Prepared: <u>04/24/14 13:00</u>	Analyzed: <u>04/24/14 15:20</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2038</u>	Sequence: <u>1405667</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	6.36	1	<i>JD</i>	EPA-150.1

*6/10/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-19-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-03</u>	File ID: <u>Tiamo042414-065</u>	
Sampled: <u>04/22/14 11:40</u>	Prepared: <u>04/24/14 13:00</u>	Analyzed: <u>04/24/14 15:25</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2038</u>	Sequence: <u>1405667</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.16	1	J	EPA-150.1

*5/6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-19-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-04</u>	File ID: <u>Tiamo042414-066</u>	
Sampled: <u>04/22/14 14:10</u>	Prepared: <u>04/24/14 13:00</u>	Analyzed: <u>04/24/14 15:31</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2038</u>	Sequence: <u>1405667</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.44	1	J	EPA-150.1

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-19-3

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-05

File ID: Tiamo042414-067

Sampled: 04/22/14 14:45

Prepared: 04/24/14 13:00

Analyzed: 04/24/14 15:37

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2038

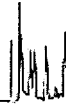
Sequence: 1405667

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.47	1	J	EPA-150.1

7/6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

EB-2-4/22/14

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-02

File ID:

Sampled: 04/22/14 11:10

Prepared: 04/26/14 16:00

Analyzed: 04/26/14 16:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2270

Sequence: 1405908

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	13	0.667	D	EPA-160.1

6/10/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

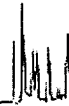
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-19-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-03</u>
Sampled: <u>04/22/14 11:40</u>	Prepared: <u>04/26/14 16:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2270</u>	Sequence: <u>1405908</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	690	3.33	D	EPA-160.1

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

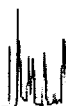
**EPA-160.1**

MW-19-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-04</u>	File ID:	
Sampled: <u>04/22/14 14:10</u>	Prepared: <u>04/26/14 16:00</u>	Analyzed: <u>04/26/14 16:00</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>100 ml / 100 ml</u>	
Batch: <u>BXD2270</u>	Sequence: <u>1405908</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MANUAL</u>

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

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-19-3

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-05

File ID:

Sampled: 04/22/14 14:45

Prepared: 04/26/14 16:00

Analyzed: 04/26/14 16:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2270

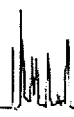
Sequence: 1405908

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

EB-2-4/22/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-02</u>
Sampled: <u>04/22/14 11:10</u>	Prepared: <u>04/23/14 02:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD1898</u>	Sequence: <u>1405508</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>IC2</u>
	File ID: <u>B042214A.seq-33</u>
	Analyzed: <u>04/23/14 10:42</u>
	Initial/Final: <u>20 ml / 20 ml</u>

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	0.040	1	J	EPA-300.0
14808-79-8	Sulfate	0.18	1	U	EPA-300.0

*Handwritten signature and date: 6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

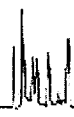
**EPA-300.0**

MW-19-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-03</u>	File ID: <u>B042214A.seq-34</u>	
Sampled: <u>04/22/14 11:40</u>	Prepared: <u>04/23/14 02:00</u>	Analyzed: <u>04/23/14 10:57</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1898</u>	Sequence: <u>1405508</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC2</u>

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

6/10/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-19-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-04</u>	File ID: <u>B042214A.seq-35</u>	
Sampled: <u>04/22/14 14:10</u>	Prepared: <u>04/23/14 02:00</u>	Analyzed: <u>04/23/14 11:13</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1898</u>	Sequence: <u>1405508</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	8.6	1		EPA-300.0
14797-55-8	Nitrate as N	0.25	1		EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-19-3

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-05

File ID: B042214A.seq-36

Sampled: 04/22/14 14:45

Prepared: 04/23/14 02:00

Analyzed: 04/23/14 11:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1898

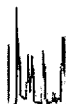
Sequence: 1405508

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	41	1		EPA-300.0
14797-55-8	Nitrate as N	7.9	1		EPA-300.0
14808-79-8	Sulfate	41	1		EPA-300.0

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

EB-2-4/22/14

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-02

File ID: F050314.seq-16.0000.txt

Sampled: 04/22/14 11:10

Prepared: 05/04/14 18:00

Analyzed: 05/04/14 22:07

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0276

Sequence: 1406115

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-19-2

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-03

File ID: F050314.seq-17.0000.txt

Sampled: 04/22/14 11:40

Prepared: 05/04/14 18:00

Analyzed: 05/04/14 22:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0276

Sequence: 1406115

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	6.3	1		EPA-314.0

*9/6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-19-1

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-04

File ID: F050314.seq-19.0000.txt

Sampled: 04/22/14 14:10

Prepared: 05/04/14 18:00

Analyzed: 05/04/14 22:48

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0276

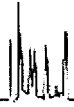
Sequence: 1406115

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-19-3

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-05

File ID: F050314.seq-20.0000.txt

Sampled: 04/22/14 14:45

Prepared: 05/04/14 18:00

Analyzed: 05/04/14 23:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0276

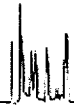
Sequence: 1406115

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

EB-2-4/22/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-02</u>
Sampled: <u>04/22/14 11:10</u>	File ID: <u>140423 0855 NO2-054</u>
Solids: <u>0.00</u>	Prepared: <u>04/23/14 08:55</u>
Batch: <u>BXD1972</u>	Analyzed: <u>04/23/14 08:55</u>
Sequence: <u>1405547</u>	Preparation: <u>No Prep</u>
	Initial/Final: <u>20 ml / 20 ml</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>KONE-1</u>

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-19-2

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-03

File ID: 140423 0855 NO2-055

Sampled: 04/22/14 11:40

Prepared: 04/23/14 08:55

Analyzed: 04/23/14 09:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1972

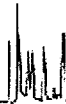
Sequence: 1405547

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-19-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-04</u>	File ID: <u>140423 0855 NO2-056</u>	
Sampled: <u>04/22/14 14:10</u>	Prepared: <u>04/23/14 08:55</u>	Analyzed: <u>04/23/14 09:01</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1972</u>	Sequence: <u>1405547</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.016	1	J	EPA-353.2

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-19-3

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-05

File ID: 140423 0855 NO2-057

Sampled: 04/22/14 14:45

Prepared: 04/23/14 08:55

Analyzed: 04/23/14 09:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1972

Sequence: 1405547

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**EB-2-4/22/14**

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-02

File ID: Tiamo042414-064

Sampled: 04/22/14 11:10

Prepared: 04/24/14 13:00

Analyzed: 04/24/14 15:20

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2038

Sequence: 1405667

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

*Handwritten signature/initials*  
6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-19-2

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-03

File ID: Tiamo042414-065

Sampled: 04/22/14 11:40

Prepared: 04/24/14 13:00

Analyzed: 04/24/14 15:25

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2038

Sequence: 1405667

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-19-1**

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-04

File ID: Tiamo042414-066

Sampled: 04/22/14 14:10

Prepared: 04/24/14 13:00

Analyzed: 04/24/14 15:31

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2038

Sequence: 1405667

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

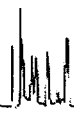
**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-19-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-05</u>	File ID: <u>Tiamo042414-067</u>	
Sampled: <u>04/22/14 14:45</u>	Prepared: <u>04/24/14 13:00</u>	Analyzed: <u>04/24/14 15:37</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2038</u>	Sequence: <u>1405667</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/8/2014 11:50:48AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

EB-2-4/22/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-08977</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1408977-02</u>	File ID: <u>140423 0740 CR6-005</u>	
Sampled: <u>04/22/14 11:10</u>	Prepared: <u>04/23/14 07:40</u>	Analyzed: <u>04/23/14 07:40</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD1956</u>	Sequence: <u>1405497</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*9/6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-19-2

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-03

File ID: 140423 0740 CR6-009

Sampled: 04/22/14 11:40

Prepared: 04/23/14 07:40

Analyzed: 04/23/14 07:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1956

Sequence: 1405497

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

*Handwritten signature and date: 6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-19-1

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-04

File ID: 140423 0740 CR6-010

Sampled: 04/22/14 14:10

Prepared: 04/23/14 07:40

Analyzed: 04/23/14 07:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1956

Sequence: 1405497

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

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/8/2014 11:50:48AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-19-3

Laboratory: BC Laboratories

SDG: 14-08977

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1408977-05

File ID: 140423 0740 CR6-020

Sampled: 04/22/14 14:45

Prepared: 04/23/14 07:40

Analyzed: 04/23/14 08:07

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD1956

Sequence: 1405497

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

*6/10/14*

LDC #: 31898A6

**VALIDATION COMPLETENESS WORKSHEET**

Date: 6-4-14

SDG #: 14-08977

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: JA

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Nitrite-N (EPA Method 353.2), Hexavalent Chromium (EPA SW846 Method 7196), 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.	Technical holding times	SW	Sampling dates: 4-22-14
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	SW	EB = 1

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

all water

1	EB-2-4/22/14	11		21		31	
2	MW-19-2	12		22		32	
3	MW-19-1	13		23		33	
4	MW-19-3	14		24		34	
5	EB-2-4/22/14MS	15		25		35	
6	EB-2-4/22/14MSD	16		26		36	
7	EB-2-4/22/14DUP	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	PBW

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_







## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 23, 2014  
**LDC Report Date:** June 9, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09094

### Sample Identification

TB-3-4/23/14  
EB-3-4/23/14  
MW-3-5\*\*  
MW-3-4  
MW-3-2  
MW-3-3  
MW-3-1  
MW-25-5  
MW-25-4  
MW-25-3  
MW-25-2  
MW-25-1  
MW-25-3MS  
MW-25-3MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## **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%.

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

## **V. Blanks**

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

## **VI. Surrogate Spikes**

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

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

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



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

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

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

Not applicable.

### **X. Internal Standards**

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

### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria 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.

### **XII. Compound Quantitation**

All compound quantitations were within validation criteria 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. Tentatively Identified Compounds (TICs)**

All tentatively identified compounds were within validation criteria 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. System Performance**

The system performance was 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.

### **XV. Overall Assessment of Data**

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

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

### **XVII. Field Blanks**

Sample TB-3-4/23/14 was identified as a trip blank. No volatile contaminants were found.

Sample EB-3-4/23/14 was identified as an equipment blank. No volatile contaminants were found.

**NASA JPL, 2Q2014**

**Volatiles - Data Qualification Summary - SDG 14-09094**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-09094**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

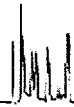
EPA-524.2

TB-3-4/23/14

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-01 File ID: 24APR08.D  
Sampled: 04/23/14 06:20 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 11:27  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

TB-3-4/23/14

Laboratory: BC Laboratories      SDG: 14-09094  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409094-01      File ID: 24APR08.D  
Sampled: 04/23/14 06:20      Prepared: 04/24/14 08:30      Analyzed: 04/24/14 11:27  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2012      Sequence: 1405539      Calibration: 1404015      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

6/10/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

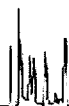
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

TB-3-4/23/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-01</u>	File ID:	<u>24APR08.D</u>		
Sampled:	<u>04/23/14 06:20</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 11:27</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-3-4/23/14

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-02 File ID: 24APR09.D  
Sampled: 04/23/14 06:30 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 11:50  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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

6/10/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-3-4/23/14

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-02 File ID: 24APR09.D  
Sampled: 04/23/14 06:30 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 11:50  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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

Handwritten signature/initials: 5/19/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-3-4/23/14

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-02 File ID: 24APR09.D  
Sampled: 04/23/14 06:30 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 11:50  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	10.510	105	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.170	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2700	92.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	245463	6.73	253262	6.73	
Chlorobenzene-d5 (IS)	84985	9.73	90991	9.73	
1,4-Difluorobenzene (IS)	336201	7.51	356028	7.52	

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**EB-3-4/23/14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-02</u>	File ID:	<u>24APR09.D</u>		
Sampled:	<u>04/23/14 06:30</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 11:50</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature*  
*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-3-5

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-03 File ID: 24APR10.D  
Sampled: 04/23/14 07:00 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 12:13  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	0.20	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

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-3-5

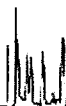
Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-03 File ID: 24APR10.D  
Sampled: 04/23/14 07:00 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 12:13  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	10.810	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.190	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1900	91.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	247498	6.73	253262	6.73	
Chlorobenzene-d5 (IS)	85813	9.73	90991	9.73	
1,4-Difluorobenzene (IS)	337899	7.52	356028	7.52	

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-3-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-03</u>	File ID:	<u>24APR10.D</u>		
Sampled:	<u>04/23/14 07:00</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 12:13</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*16/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-3-4

Laboratory: BC Laboratories      SDG: 14-09094  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409094-04      File ID: 24APR11.D  
Sampled: 04/23/14 07:40      Prepared: 04/24/14 08:30      Analyzed: 04/24/14 12:35  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2012      Sequence: 1405539      Calibration: 1404015      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	0.14	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

6/10/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

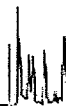
EPA-524.2

MW-3-4

Laboratory: BC Laboratories      SDG: 14-09094  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409094-04      File ID: 24APR11.D  
Sampled: 04/23/14 07:40      Prepared: 04/24/14 08:30      Analyzed: 04/24/14 12:35  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2012      Sequence: 1405539      Calibration: 1404015      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

5/19/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-3-4

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-04 File ID: 24APR11.D  
Sampled: 04/23/14 07:40 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 12:35  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	10.340	103	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.040	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0800	90.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	250626	6.73	253262	6.73	
Chlorobenzene-d5 (IS)	83293	9.73	90991	9.73	
1,4-Difluorobenzene (IS)	334007	7.52	356028	7.52	

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-3-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-04</u>	File ID:	<u>24APR11.D</u>		
Sampled:	<u>04/23/14 07:40</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 12:35</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/10/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:55:39AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-3-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-05</u>	File ID: <u>24APR12.D</u>	
Sampled: <u>04/23/14 08:40</u>	Prepared: <u>04/24/14 08:30</u>	Analyzed: <u>04/24/14 12:58</u>	
Solids:	Preparation: <u>EPA 5030 Water MS</u>	Initial/Final: <u>25 ml / 25 ml</u>	
Batch: <u>BXD2012</u>	Sequence: <u>1405539</u>	Calibration: <u>1404015</u>	Instrument: <u>MS-V5</u>

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	0.22	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	0.49	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

*Mu/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-3-2

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-05 File ID: 24APR12.D  
Sampled: 04/23/14 08:40 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 12:58  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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

Handwritten signature and date: 5/6/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

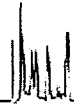
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-3-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-05</u>	File ID:	<u>24APR12.D</u>		
Sampled:	<u>04/23/14 08:40</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 12:58</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*M  
6/11/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-3-3

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-06 File ID: 24APR13.D  
Sampled: 04/23/14 08:15 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 13:20  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	0.13	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

M  
6/10/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

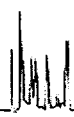
EPA-524.2

MW-3-3

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-06 File ID: 24APR13.D  
Sampled: 04/23/14 08:15 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 13:20  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	1,1,1,2-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

*Handwritten signature/initials*  
6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-3-3

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-06 File ID: 24APR13.D  
Sampled: 04/23/14 08:15 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 13:20  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	10.510	105	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.010	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2400	92.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	243432	6.73	253262	6.73	
Chlorobenzene-d5 (IS)	82699	9.73	90991	9.73	
1,4-Difluorobenzene (IS)	332595	7.52	356028	7.52	

5/6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-3-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-06</u>	File ID:	<u>24APR13.D</u>		
Sampled:	<u>04/23/14 08:15</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 13:20</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/10/14*









Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-3-1

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-07</u>	File ID:	<u>24APR14.D</u>		
Sampled:	<u>04/23/14 10:40</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 13:43</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 5/11/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-25-5

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-08 File ID: 24APR15.D  
Sampled: 04/23/14 12:00 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 14:05  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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

8/26/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-25-5

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-08 File ID: 24APR15.D  
Sampled: 04/23/14 12:00 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 14:05  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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

*Handwritten signature*  
6/10/14



Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr.
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-25-5

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/23/14 12:00
Solids:
Batch: BXD2012
SDG: 14-09094
Project: JPL- GW Monitoring Wells
Laboratory ID: 1409094-08
Prepared: 04/24/14 08:30
Preparation: EPA 5030 Water MS
File ID: 24APR15.D
Analyzed: 04/24/14 14:05
Initial/Final: 25 ml / 25 ml
Sequence: 1405539
Calibration: 1404015
Instrument: MS-V5

Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Shows surrogate compounds and their recovery percentages.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Lists internal standards used for calibration.

Handwritten signature/initials: 9/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

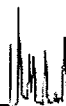
MW-25-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-08</u>	File ID:	<u>24APR15.D</u>		
Sampled:	<u>04/23/14 12:00</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 14:05</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-25-4

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-09 File ID: 24APR16.D  
Sampled: 04/23/14 12:40 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 14:28  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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

7/6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-25-4

Laboratory: BC Laboratories      SDG: 14-09094  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409094-09      File ID: 24APR16.D  
Sampled: 04/23/14 12:40      Prepared: 04/24/14 08:30      Analyzed: 04/24/14 14:28  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2012      Sequence: 1405539      Calibration: 1404015      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	10.700	107	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.160	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2300	92.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	246934	6.73	253262	6.73	
Chlorobenzene-d5 (IS)	81468	9.73	90991	9.73	
1,4-Difluorobenzene (IS)	325370	7.51	356028	7.52	

*Handwritten signature/initials*  
5/20/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-25-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-09</u>
Sampled:	<u>04/23/14 12:40</u>	Prepared:	<u>04/24/14 08:30</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 6/10/14*







Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

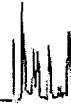
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-25-3

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-10 File ID: 24APR17.D  
Sampled: 04/23/14 13:20 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 14:51  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	0.91	
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	0.10	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

9/6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-25-3

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-10 File ID: 24APR17.D  
Sampled: 04/23/14 13:20 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 14:51  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	10.660	107	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.270	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2000	92.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	246847	6.73	253262	6.73	
Chlorobenzene-d5 (IS)	82901	9.73	90991	9.73	
1,4-Difluorobenzene (IS)	325609	7.52	356028	7.52	

M  
10/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-25-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-10</u>	File ID:	<u>24APR17.D</u>		
Sampled:	<u>04/23/14 13:20</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 14:51</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature/initials*

Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

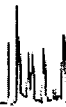
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-25-2

Laboratory: BC Laboratories SDG: 14-09094  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409094-11 File ID: 24APR18.D  
 Sampled: 04/23/14 13:50 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 15:13  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	0.13	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	0.072	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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-25-2

Laboratory: BC Laboratories      SDG: 14-09094  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409094-11      File ID: 24APR18.D  
Sampled: 04/23/14 13:50      Prepared: 04/24/14 08:30      Analyzed: 04/24/14 15:13  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2012      Sequence: 1405539      Calibration: 1404015      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	0.28	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

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-25-2

Laboratory: BC Laboratories SDG: 14-09094  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409094-11 File ID: 24APR18.D  
Sampled: 04/23/14 13:50 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 15:13  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	10.630	106	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.070	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2500	92.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	244255	6.73	253262	6.73	
Chlorobenzene-d5 (IS)	80949	9.73	90991	9.73	
1,4-Difluorobenzene (IS)	326406	7.51	356028	7.52	

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:55:39AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

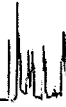
**EPA-524.2**

MW-25-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-11</u>	File ID:	<u>24APR18.D</u>		
Sampled:	<u>04/23/14 13:50</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 15:13</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

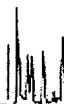
MW-25-1

Laboratory: BC Laboratories      SDG: 14-09094  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409094-12      File ID: 24APR19.D  
Sampled: 04/23/14 14:20      Prepared: 04/24/14 08:30      Analyzed: 04/24/14 15:36  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2012      Sequence: 1405539      Calibration: 1404015      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	0.58	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

6/10/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

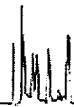
EPA-524.2

MW-25-1

Laboratory: BC Laboratories      SDG: 14-09094  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409094-12      File ID: 24APR19.D  
Sampled: 04/23/14 14:20      Prepared: 04/24/14 08:30      Analyzed: 04/24/14 15:36  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2012      Sequence: 1405539      Calibration: 1404015      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	0.24	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	1,1,1,2,2-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	2.5	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

*5/10/14*



Tidewater Inc. Reported: 5/19/2014 11:55:39AM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-25-1

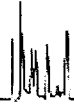
Laboratory: BC Laboratories SDG: 14-09094  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409094-12 File ID: 24APR19.D  
 Sampled: 04/23/14 14:20 Prepared: 04/24/14 08:30 Analyzed: 04/24/14 15:36  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2012 Sequence: 1405539 Calibration: 1404015 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	10.690	107	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.260	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9500	89.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	239568	6.73	253262	6.73	
Chlorobenzene-d5 (IS)	81952	9.73	90991	9.73	
1,4-Difluorobenzene (IS)	320262	7.51	356028	7.52	

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:55:39AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-25-1

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09094</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409094-12</u>	File ID:	<u>24APR19.D</u>		
Sampled:	<u>04/23/14 14:20</u>	Prepared:	<u>04/24/14 08:30</u>	Analyzed:	<u>04/24/14 15:36</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405539</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

9/6/10/14

LDC #: 31898B1

## VALIDATION COMPLETENESS WORKSHEET

Date: 6/9/14

SDG #: 14-09094

Level III/IV

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: BZ

2nd Reviewer: [Signature]

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.	Technical holding times	A	Sampling dates: 4/23/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 20%, r <sup>2</sup>
IV.	Continuing calibration/ICV	A	1 WICW ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	NA	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	NA	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 1 EB = 2

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

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

Water						
1	TB-3-4/23/14	11	MW-25-2	21	31	Bx D2012-Blk1
2	EB-3-4/23/14	12	MW-25-1	22	32	
3	MW-3-5**	13	MW-25-3MS	23	33	
4	MW-3-4	14	MW-25-3MSD	24	34	
5	MW-3-2	15		25	35	
6	MW-3-3	16		26	36	
7	MW-3-1	17		27	37	
8	MW-25-5	18		28	38	
9	MW-25-4	19		29	39	
10	MW-25-3	20		30	40	

**Method:** Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) < 20%?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) < 30%?	/			
<b>V. Blanks</b>				
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.		/		
<b>VI. Surrogate spikes</b>				
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?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
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?	/			
<b>VIII. Laboratory control samples</b>				
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?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
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?	/			
<b>XI. Target compound identification</b>				
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?	/			
<b>XII. Compound quantitation/RLs</b>				
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?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within $\pm$ 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVII. Field blanks</b>				
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 chloride	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 #: 31898B1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

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

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<sub>x</sub> = Area of Compound

C<sub>x</sub> = Concentration of compound,

S= Standard deviation of the RRFs,

A<sub>is</sub> = Area of associated internal standard

C<sub>is</sub> = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	4/8/2014	1,1-Dichloroethene (IS1)	0.804240	0.804240	0.7866686	0.7866686	13.1477	13.1477
	MS-V5		Trichloroethene (IS2)	0.330604	0.330604	0.3303824	0.3303824	9.748455	9.748462
			1,1,2,2-Tetrachloethane	0.544418	0.544418	0.5527675	0.5527675	2.742399	2.742366

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 #: 31898B1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: ( of /  
 Reviewer: BR  
 2nd Reviewer: *[Signature]*

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<sub>x</sub> = Area of Compound

C<sub>x</sub> = Concentration of compound,

S = Standard deviation of the RRFs,

A<sub>is</sub> = Area of associated internal standard

C<sub>is</sub> = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 32/80 std)	Recalculated RRF (RRF 32/80 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	2/5/2014	Allyl chloride (IS1)	0.741567	0.741567	0.737045	0.737045	6.962034	6.962036
	MS-V5		Methyl methacrylate (IS2)	0.084568	0.084568	0.08916918	0.08916918	5.522741	5.522764
			Pentachloroethane (IS3)	0.638115	0.638115	0.5958182	0.5958182	14.21785	14.21786

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 #: 31898B1

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

Page: 1 of 1

Reviewer: SR  
2nd reviewer: F

**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	10.00	10.19	102	102	0
Bromofluorobenzene	↓	9.19	91.9	91.9	0
1,2-Dichlorobenzene-d4		10.81	108	108	0
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					

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

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

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

METHOD: GC/MS VOA (EPA Method 524.2)

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

$$\% \text{Recovery} = 100 * (\text{SSC} - \text{SC}) / \text{SA}$$

Where: SSC = Spiked sample concentration  
SA = Spike added

SC = Sample concentration

$$\text{RPD} = [(\text{MSC} - \text{MSDC}) * 2] / (\text{MSC} + \text{MSDC}) * 100$$

MSC = Matrix spike percent recovery

MSDC = Matrix spike duplicate percent recovery

MS/MSD samples: 13/14

Compound	Spike Added		Sample Conc.	Spiked Sample Concentration		Matrix spike		Matrix Spike Duplicate		MS/MSD	
	(µg/L)		(µg/L)	(µg/L)		Percent Recovery		Percent Recovery		RPD	
	MS	MSD	-----	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
1,1-Dichloroethene	25.00	25.00	0	26.640	26.470	107%	107%	106%	106%	0.64%	0.64%
Trichloroethene	25.00	25.00	0.1	26.910	27.140	107%	107%	108%	108%	0.851%	0.851%
Benzene	25.00	25.00	0	23.450	23.310	93.8%	93.8%	93.2%	93.2%	0.599%	0.599%
Toluene	25.00	25.00	0	24.090	25.350	96.4%	96.4%	101%	101%	5.10%	5.10%
Chlorobenzene	25.00	25.00	0	26.180	26.090	105%	105%	104%	104%	0.344%	0.344%

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

LDC #: 31898B1

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
 Reviewer: BR  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA Method 524.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory 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 = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS ID: BX D2012 - B51

Compound	Spike Added (1.25 µg/L)		Spiked Sample Concentration (1.25 µg/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.00	—	26.500	—	106	106	2			
Trichloroethene	↓	↓	28.690	↓	115	115				
Benzene	↓	↓	22.700	↓	90.8	90.8				
Toluene	↓	↓	25.320	↓	101	101				
Chlorobenzene	↓	↓	26.040	↓	104	104				

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.



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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 23, 2014  
**LDC Report Date:** June 5, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09094

**Sample Identification**

EB-3-4/23/14  
MW-3-5\*\*  
MW-3-4  
MW-3-2  
MW-3-3  
MW-3-1  
MW-25-5  
MW-25-4  
MW-25-3  
MW-25-2  
MW-25-1  
MW-25-3MS  
MW-25-3MSD  
MW-25-3DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 200.7 and 200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron	7.1841 ug/L	EB-3-4/23/14 MW-3-5** MW-3-4 MW-3-2 MW-3-3 MW-3-1
ICB/CCB	Iron	10.549 ug/L	EB-3-4/23/14 MW-3-5** MW-3-4 MW-3-2 MW-3-3 MW-3-1
PB (prep blank)	Lead	0.15900 ug/L	EB-3-4/23/14 MW-3-5** MW-3-4 MW-3-2 MW-3-3 MW-3-1 MW-25-5 MW-25-4 MW-25-3 MW-25-2
ICB/CCB	Chromium Lead	0.63300 ug/L 0.17500 ug/L	MW-25-3



Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Chromium	1.4200 ug/L	EB-3-4/23/14 MW-3-5** MW-3-4 MW-3-2 MW-3-3 MW-3-1 MW-25-5 MW-25-4 MW-25-2
PB (prep blank)	Magnesium	0.029029 mg/L	MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1
ICB/CCB	Magnesium	0.030888 mg/L	MW-25-5 MW-25-4 MW-25-3 MW-25-2 MW-25-1

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

Method Blank ID	Analyte	Concentration	MRL	Associated Samples	Flag	A or P
CCB2	Iron	-59.950 ug/L	50.00 ug/L	MW-25-5 MW-25-4 MW-25-3 MW-25-2	J (all detects) UJ (all non-detects)	A

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-25-3	Chromium	2.7 ug/L	2.7U ug/L
EB-3-4/23/14	Chromium	0.68 ug/L	0.68U ug/L
MW-3-3	Chromium	3.4 ug/L	3.4U ug/L
MW-25-4	Chromium	1.4 ug/L	1.4U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-25-2	Chromium	2.8 ug/L	2.8U ug/L

## V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## VI. Matrix Spike Analysis

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

## VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VIII. Laboratory Control Samples (LCS)

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

## IX. Internal Standards

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.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. 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.

## XII. Overall Assessment of Data

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

### XIII. Field Duplicates

No field duplicates were identified in this SDG.

### XIV. Field Blanks

Sample EB-3-4/23/14 was identified as an equipment blank. No metal contaminants were found with the following exceptions:

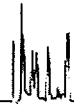
Blank ID	Analyte	Concentration
EB-3-4/23/14	Chromium Calcium	0.68 ug/L 0.026 mg/L

**NASA JPL, 2Q2014  
Metals - Data Qualification Summary - SDG 14-09094**

SDG	Sample	Analyte	Flag	A or P	Reason
14-09094	MW-25-5 MW-25-4 MW-25-3 MW-25-2	Iron	J (all detects) UJ (all non-detects)	A	Negative blank (concentration)

**NASA JPL, 2Q2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 14-09094**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09094	MW-25-3	Chromium	2.7U ug/L	A
14-09094	EB-3-4/23/14	Chromium	0.68U ug/L	A
14-09094	MW-3-3	Chromium	3.4U ug/L	A
14-09094	MW-25-4	Chromium	1.4U ug/L	A
14-09094	MW-25-2	Chromium	2.8U ug/L	A



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-3-4/23/14

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-02

File ID: PE2 140429R1-151

Sampled: 04/23/14 06:30

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:31

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.026	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.017	1	U	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

6/10/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID: PE2 140429R1-152

Sampled: 04/23/14 07:00

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:34

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence:

1406082

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	42	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	14	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	41	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.4	1		EPA-200.7

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-3-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-04

File ID: PE2\_140429R1-153

Sampled: 04/23/14 07:40

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:37

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

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	42	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.5	1		EPA-200.7

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-3-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-05</u>	File ID: <u>PE2_140429R1-154</u>	
Sampled: <u>04/23/14 08:40</u>	Prepared: <u>04/25/14 08:20</u>	Analyzed: <u>04/29/14 23:40</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2183</u>	Sequence: <u>1406082</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

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	17	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	20	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.6	1		EPA-200.7

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-3-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID: PE2 140429R1-155

Sampled: 04/23/14 08:15

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:42

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

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	41	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.5	1		EPA-200.7

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-3-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-07

File ID: PE2\_140429R1-156

Sampled: 04/23/14 10:40

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:45

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	58	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	19	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	26	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

9/6/10/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-25-5**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID: PE2\_140429R1-127

Sampled: 04/23/14 12:00

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:24

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence:

1406081

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	5.3	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	68	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

*6/10/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

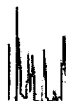
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-25-5
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-08</u>	File ID: <u>PE2 140430R-032</u>	
Sampled: <u>04/23/14 12:00</u>	Prepared: <u>04/25/14 08:20</u>	Analyzed: <u>04/30/14 16:01</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2184</u>	Sequence: <u>1406083</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	4.4	1	B	EPA-200.7

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-09

File ID: PE2\_140429R1-128

Sampled: 04/23/14 12:40

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:27

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

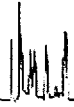
Sequence: 1406081

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
7440-23-5	Total Recoverable Sodium	51	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.6	1		EPA-200.7

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-09

File ID: PE2 140430R-036

Sampled: 04/23/14 12:40

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 16:13

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

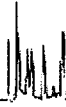
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Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	25	1	B	EPA-200.7

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-25-3**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-10

File ID: PE2\_140429R1-116

Sampled: 04/23/14 13:20

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 21:53

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406081

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	80	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	35	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-10

File ID: PE2\_140430R-026

Sampled: 04/23/14 13:20

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 15:45

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406083

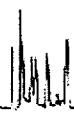
Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	27	1	B	EPA-200.7

6/10/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11

File ID: PE2 140429R1-129

Sampled: 04/23/14 13:50

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:30

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406081

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	78	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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11

File ID: PE2 140430R-037

Sampled: 04/23/14 13:50

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 16:16

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406083

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	28	1	B	EPA-200.7

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-25-1**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID: PE2\_140429R1-130

Sampled: 04/23/14 14:20

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:33

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406081

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
7440-23-5	Total Recoverable Sodium	37	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID: PE2\_140430R-038

Sampled: 04/23/14 14:20

Prepared: 04/25/14 08:20

Analyzed: 04/30/14 16:19

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406083

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	34	1	B	EPA-200.7

*Handwritten signature/initials*  
5/20/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

EB-3-4/23/14

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-02

File ID: PE\_EL2\_140501-099

Sampled: 04/23/14 06:30

Prepared: 04/28/14 08:30

Analyzed: 05/01/14 23:18

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2318

Sequence: 1405990

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	0.68	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

9  
6/10/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID: PE\_EL2\_140501-100

Sampled: 04/23/14 07:00

Prepared: 04/28/14 08:30

Analyzed: 05/01/14 23:21

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2318

Sequence: 1405990

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	7.7	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	11	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Handwritten signature*  
6/10/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

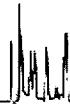
**EPA-200.8**

**MW-3-4**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-04</u>	File ID: <u>PE_EL2_140501-101</u>	
Sampled: <u>04/23/14 07:40</u>	Prepared: <u>04/28/14 08:30</u>	Analyzed: <u>05/01/14 23:24</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2318</u>	Sequence: <u>1405990</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	14	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	15	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**MW-3-2**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-05

File ID: PE\_EL2\_140501-102

Sampled: 04/23/14 08:40

Prepared: 04/28/14 08:30

Analyzed: 05/01/14 23:28

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2318

Sequence: 1405990

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

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-3-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID: PE\_EL2\_140501-103

Sampled: 04/23/14 08:15

Prepared: 04/28/14 08:30

Analyzed: 05/01/14 23:31

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2318

Sequence: 1405990

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	3.4	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-3-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-07

File ID: PE\_EL2\_140501-104

Sampled: 04/23/14 10:40

Prepared: 04/28/14 08:30

Analyzed: 05/01/14 23:34

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2318

Sequence: 1405990

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-25-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID: PE\_EL2\_140501-105

Sampled: 04/23/14 12:00

Prepared: 04/28/14 08:30

Analyzed: 05/01/14 23:37

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2318

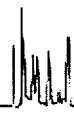
Sequence: 1405990

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
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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-25-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-09

File ID: PE\_EL2\_140501-106

Sampled: 04/23/14 12:40

Prepared: 04/28/14 08:30

Analyzed: 05/01/14 23:41

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2318

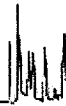
Sequence: 1405990

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	1.4	1	J <i>U</i>	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-25-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-10

File ID: PE\_EL2\_140430-282

Sampled: 04/23/14 13:20

Prepared: 04/28/14 08:30

Analyzed: 05/01/14 03:15

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2318

Sequence: 1405959

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	2.7	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-25-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11

File ID: PE\_EL2\_140501-107

Sampled: 04/23/14 13:50

Prepared: 04/28/14 08:30

Analyzed: 05/01/14 23:44

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2318

Sequence: 1405990

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	2.8	1	J U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/10/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-25-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID: PE\_EL2\_140502-022

Sampled: 04/23/14 14:20

Prepared: 04/29/14 08:30

Analyzed: 05/02/14 09:17

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2429

Sequence: 1406075

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	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**EB-3-4/23/14**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-02

File ID: PE2 140429R1-151

Sampled: 04/23/14 06:30

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:31

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

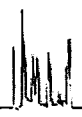
Calibration: UNASSIGNED

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

*Handwritten signature/initials*  
6/10/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID: PE2 140429R1-152

Sampled: 04/23/14 07:00

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:34

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	5100	1		EPA-200.7

*g*  
6/10/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-3-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-04

File ID: PE2\_140429R1-153

Sampled: 04/23/14 07:40

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:37

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	13000	1		EPA-200.7

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-3-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-05</u>	File ID: <u>PE2_140429R1-154</u>	
Sampled: <u>04/23/14 08:40</u>	Prepared: <u>04/25/14 08:20</u>	Analyzed: <u>04/29/14 23:40</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2183</u>	Sequence: <u>1406082</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	860	1		EPA-200.7

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-3-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID: PE2\_140429R1-155

Sampled: 04/23/14 08:15

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 23:42

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2183

Sequence: 1406082

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	520	1		EPA-200.7

*Handwritten signature and date: 6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/20/2014 4:32:03PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-3-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-07</u>
Sampled: <u>04/23/14 10:40</u>	Prepared: <u>04/25/14 08:20</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>
Batch: <u>BXD2183</u>	Sequence: <u>1406082</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-OP2</u>
	File ID: <u>PE2_140429R1-156</u>
	Analyzed: <u>04/29/14 23:45</u>
	Initial/Final: <u>50 ml / 50 ml</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	800	1		EPA-200.7

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID: PE2 140429R1-127

Sampled: 04/23/14 12:00

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:24

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406081

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 <i>US</i>	EPA-200.7

*5/20/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-09

File ID: PE2 140429R1-128

Sampled: 04/23/14 12:40

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:27

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

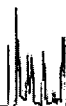
Sequence: 1406081

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	160	1	J	EPA-200.7

*Handwritten signature and date: 6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-10

File ID: PE2\_140429R1-116

Sampled: 04/23/14 13:20

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 21:53

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406081

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 <i>MS</i>	EPA-200.7

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11

File ID: PE2 140429R1-129

Sampled: 04/23/14 13:50

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:30

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406081

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

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/20/2014 4:32:03PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-25-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID: PE2\_140429R1-130

Sampled: 04/23/14 14:20

Prepared: 04/25/14 08:20

Analyzed: 04/29/14 22:33

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2184

Sequence: 1406081

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

*9/0/10/14*

LDC #: 31898B4

**VALIDATION COMPLETENESS WORKSHEET**

Date: 6-4-14

SDG #: 14-09094

Level III/IV

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: *[Signature]***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.	Technical holding times	A	Sampling dates: 4-23-14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	A	MS/MSD (SDG: 14-08977)
VII.	Duplicate Sample Analysis	A	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	A	not reviewed for level III
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	SW	EB = 1

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

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

*all water*

1	EB-3-4/23/14	11	MW-25-1	21		31	
2	MW-3-5**	12	MW-25-3MS	22		32	
3	MW-3-4	13	MW-25-3MSD	23		33	
4	MW-3-2	14	MW-25-3DUP	24		34	
5	MW-3-3	15		25		35	
6	MW-3-1	16		26		36	
7	MW-25-5	17		27		37	
8	MW-25-4	18		28		38	
9	MW-25-3	19		29		39	PBW1
10	MW-25-2	20		30		40	PBW2

Notes:

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

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution $\leq 5\%$ ?	✓			
<b>III. Calibration</b>				
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 $> 0.995$ ?	✓			
<b>IV. Blanks</b>				
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.	✓			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
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) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\pm RL$ ( $\pm 2X RL$ for soil) was used for samples that were $\leq 5X$ the RL, including when only one of the duplicate sample values were $< 5X$ the RL.	✓			
<b>VII. Laboratory control samples</b>				
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?	✓			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
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?			✓	
<b>IX. ICP Serial Dilution</b>				
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.			✓	
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			





VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 1-6 (>5x or ND)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Fe		7.1841	10.549	52.74										

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 1-10 (ND)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Pb		0.15900		0.795										

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 9

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	9									
Cr			0.63300	3.165	2.7									
Pb			0.17500	0.875										

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 1-8,10

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1	5	8	10						
Cr			1.4200	7.100	0.68	3.4	1.4	2.8						

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 7-11 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Mg		0.029029	0.030888	0.154										

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 #: 31898B4

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

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

**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:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

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	Reported	Acceptable (Y/N)
					%R	%R	
<u>1126</u> ICV	ICP (Initial calibration)	<u>Mg</u>	<u>51010</u>	<u>50000</u>	<u>102</u>	<u>102</u>	<u>Y</u>
<u>1758</u> ICV	ICP/MS (Initial calibration)	<u>Cr</u>	<u>51.282</u>	<u>50.000</u>	<u>103</u>	<u>103</u>	↓
	CVAA (Initial calibration)						
<u>2317</u> CCV2	ICP (Continuing calibration)	<u>Na</u>	<u>48210</u>	<u>50000</u>	<u>96.4</u>	<u>96.4</u>	
<u>CCV8</u>	ICP/MS (Continuing calibration)	<u>Pb</u>	<u>104.874</u>	<u>100.00</u>	<u>105</u>	<u>105</u>	↓
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

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.

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**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:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = Concentration of each analyte in the source.

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

$$\text{RPD} = \frac{|S-D|}{(S+D)/2} \times 100$$

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	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
1145 IFB1	ICP interference check	Mg	526.3 (mg/L)	500.0 (mg/L)	105	105	Y
0309 LCS	Laboratory control sample	As	100.34 (mg/L)	100.0 (mg/L)	100	100	↓
0325 12	Matrix spike	Pb	(SSR-SR) 111.39 (mg/L)	100.0 (mg/L)	111	111	
2258 / 2300 EB-2-4/22/14	Duplicate	Ca	0.0347 (mg/L)	0.0323 (mg/L)	7.16	7.24	
2258 / 2303 EB-2-4/22/14	ICP serial dilution	Ca	0.0347 (mg/L)	0.0670 (mg/L)	93.1	93.2	

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.



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 23, 2014  
**LDC Report Date:** June 9, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09094

### Sample Identification

EB-3-4/23/14	MW-25-3MS
MW-3-5**	MW-25-3MSD
MW-3-4	MW-25-3DUP
MW-3-2	MW-25-2MS
MW-3-3	MW-25-2MSD
MW-3-1	MW-25-2DUP
MW-25-5	MW-25-1DUP
MW-25-4	
MW-25-3	
MW-25-2	
MW-25-1	
EB-3-4/23/14MS	
EB-3-4/23/14MSD	
EB-3-4/23/14DUP	
MW-3-5MS	
MW-3-5MSD	
MW-3-5DUP	
MW-25-4MS	
MW-25-4MSD	
MW-25-4DUP	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 27 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 353.2 for Nitrite as Nitrogen, EPA SW 846 Method 7196 for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB-3-4/23/14 EB-3-4/23/14DUP	pH	49.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-3-5	pH	49.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-3-4	pH	48.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-3-3	pH	48.25 hours	48 hours	J (all detects) UJ (all non-detects)	P

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

## II. 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. Blanks

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

## V. Matrix Spike/Matrix Spike Duplicates

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

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

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

## VIII. Sample Result Verification

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.

## IX. Overall Assessment of Data

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

## X. Field Duplicates

No field duplicates were identified in this SDG.

## XI. Field Blanks

Sample EB-3-4/23/14 was identified as an equipment blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration (pH units)
EB-3-4/23/14	pH	5.75



**NASA JPL, 2Q2014**  
**Wet Chemistry - Data Qualification Summary - SDG 14-09094**

SDG	Sample	Analyte	Flag	A or P	Reason
14-09094	EB-3-4/23/14 MW-3-5 MW-3-4 MW-3-3	pH	J (all detects) UJ (all non-detects)	P	Technical holding time

**NASA JPL, 2Q2014**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-09094**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

EB-3-4/23/14

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-02

File ID: Tiamo042514-012

Sampled: 04/23/14 06:30

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:09

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.75	1	J	EPA-150.1

*J*  
6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID: Tiamo042514-014

Sampled: 04/23/14 07:00

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:18

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

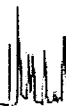
Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.76	1	J	EPA-150.1

6/10/14



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3761 Attucks Drive  
Powell, OH 43065

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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-3-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-04

File ID: Tiamo042514-015

Sampled: 04/23/14 07:40

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:24

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.72	1	J	EPA-150.1

*6/10/14*



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3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-3-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-05

File ID: Tiamo042514-016

Sampled: 04/23/14 08:40

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.62	1	<del>1</del>	EPA-150.1

6/10/14



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3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-3-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID: Tiamo042514-017

Sampled: 04/23/14 08:15

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.71	1	J	EPA-150.1

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-3-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-07

File ID: Tiamo042514-018

Sampled: 04/23/14 10:40

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:42

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.56	1		EPA-150.1

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-25-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID: Tiamo042514-019

Sampled: 04/23/14 12:00

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:48

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.43	1		EPA-150.1

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-25-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-09

File ID: Tiamo042514-020

Sampled: 04/23/14 12:40

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:54

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.88	1		EPA-150.1

6/10/14



Tidewater Inc.  
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Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-25-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-10

File ID: Tiamo042514-021

Sampled: 04/23/14 13:20

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 09:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.88	1		EPA-150.1

*Handwritten signature and date: 6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-25-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11

File ID: Tiamo042514-022

Sampled: 04/23/14 13:50

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 09:06

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

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

*Handwritten signature and date: 6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-25-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID: Tiamo042514-027

Sampled: 04/23/14 14:20

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 09:29

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2111

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.40	1		EPA-150.1

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

EB-3-4/23/14

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-02

File ID:

Sampled: 04/23/14 06:30

Prepared: 04/28/14 13:30

Analyzed: 04/28/14 13:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2383

Sequence: 1406268

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

*Handwritten signature and date: 6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID:

Sampled: 04/23/14 07:00

Prepared: 04/28/14 13:30

Analyzed: 04/28/14 13:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2383

Sequence:

1406268

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

*9/6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-3-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-04

File ID:

Sampled: 04/23/14 07:40

Prepared: 04/28/14 13:45

Analyzed: 04/28/14 13:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2384

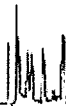
Sequence: 1406314

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

*g*  
*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-3-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-05

File ID:

Sampled: 04/23/14 08:40

Prepared: 04/28/14 13:45

Analyzed: 04/28/14 13:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2384

Sequence: 1406314

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

6/10/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-3-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID:

Sampled: 04/23/14 08:15

Prepared: 04/28/14 13:45

Analyzed: 04/28/14 13:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2384

Sequence: 1406314

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

6/10/14

Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-3-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-07

File ID:

Sampled: 04/23/14 10:40

Prepared: 04/28/14 13:45

Analyzed: 04/28/14 13:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2384

Sequence: 1406314

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-25-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID:

Sampled: 04/23/14 12:00

Prepared: 04/28/14 13:45

Analyzed: 04/28/14 13:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2384

Sequence: 1406314

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-25-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-09</u>
Sampled: <u>04/23/14 12:40</u>	Prepared: <u>04/28/14 13:45</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2384</u>	Sequence: <u>1406314</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	490	3.33	D	EPA-160.1

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-25-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-10

File ID:

Sampled: 04/23/14 13:20

Prepared: 04/28/14 13:45

Analyzed: 04/28/14 13:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2384

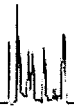
Sequence: 1406314

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

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-25-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11

File ID:

Sampled: 04/23/14 13:50

Prepared: 04/28/14 13:45

Analyzed: 04/28/14 13:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2384

Sequence: 1406314

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	430	3.33	D	EPA-160.1

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-25-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID:

Sampled: 04/23/14 14:20

Prepared: 04/28/14 13:45

Analyzed: 04/28/14 13:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2384

Sequence: 1406314

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	480	3.33	D	EPA-160.1

*5/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

EB-3-4/23/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-02</u>
Sampled: <u>04/23/14 06:30</u>	File ID: <u>B042314A.seq-05</u>
Solids: <u>0.00</u>	Prepared: <u>04/24/14 01:00</u>
Batch: <u>BXD2022</u>	Analyzed: <u>04/24/14 02:25</u>
Sequence: <u>1405739</u>	Preparation: <u>No Prep</u>
	Initial/Final: <u>20 ml / 20 ml</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>IC2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.067	1	U	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	0.18	1	U	EPA-300.0

*Handwritten signature and date: 6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID: B042314A.seq-06

Sampled: 04/23/14 07:00

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 02:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2022

Sequence: 1405739

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	32	1		EPA-300.0
14797-55-8	Nitrate as N	1.8	1		EPA-300.0
14808-79-8	Sulfate	21	1		EPA-300.0

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-3-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-04

File ID: B042314A.seq-07

Sampled: 04/23/14 07:40

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 02:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2022

Sequence: 1405739

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	32	1		EPA-300.0
14797-55-8	Nitrate as N	2.0	1		EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-3-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-05

File ID: B042314A.seq-08

Sampled: 04/23/14 08:40

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 03:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2022

Sequence: 1405739

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	0.68	1		EPA-300.0
14808-79-8	Sulfate	23	1		EPA-300.0

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-3-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID: B042314A.seq-09

Sampled: 04/23/14 08:15

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 03:25

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2022

Sequence: 1405739

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	34	1		EPA-300.0
14797-55-8	Nitrate as N	2.0	1		EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-3-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-07

File ID: B042314A.seq-10

Sampled: 04/23/14 10:40

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 03:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2022

Sequence: 1405739

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	19	1		EPA-300.0
14797-55-8	Nitrate as N	0.063	1	J	EPA-300.0
14808-79-8	Sulfate	33	1		EPA-300.0

*Handwritten signature and date: 6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-25-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID: B042314A.seq-11

Sampled: 04/23/14 12:00

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 03:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2022

Sequence: 1405739

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	14	1		EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	53	1		EPA-300.0

*Handwritten signature and date: 5/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-25-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-09

File ID: B042314A.seq-12

Sampled: 04/23/14 12:40

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 04:11

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2022

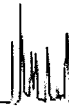
Sequence: 1405739

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	56	1		EPA-300.0
14797-55-8	Nitrate as N	6.1	1		EPA-300.0
14808-79-8	Sulfate	82	1		EPA-300.0

*M*  
*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-25-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-10

File ID: B042314A.seq-15

Sampled: 04/23/14 13:20

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 04:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2022

Sequence: 1405739

Calibration: UNASSIGNED

Instrument: IC2

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	7.9	1		EPA-300.0
14808-79-8	Sulfate	74	1		EPA-300.0

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-25-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11RE1

File ID: B042314A.seq-65

Sampled: 04/23/14 13:50

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 17:32

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2024

Sequence: 1405739

Calibration: UNASSIGNED

Instrument: IC2

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	8.3	1		EPA-300.0
14808-79-8	Sulfate	78	1		EPA-300.0

*5/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-25-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID: B042314A.seq-20

Sampled: 04/23/14 14:20

Prepared: 04/24/14 01:00

Analyzed: 04/24/14 06:11

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2024

Sequence: 1405739

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	65	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

*K  
6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

EB-3-4/23/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-02</u>
Sampled: <u>04/23/14 06:30</u>	Prepared: <u>05/05/14 16:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXE0392</u>	Sequence: <u>1406238</u>
	Calibration: <u>UNASSIGNED</u>
	File ID: <u>F050514.seq-18.0000.txt</u>
	Analyzed: <u>05/05/14 20:36</u>
	Initial/Final: <u>20 ml / 20 ml</u>
	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten:* 6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID: F050514.seq-9.0000.txt

Sampled: 04/23/14 07:00

Prepared: 05/05/14 16:00

Analyzed: 05/05/14 18:31

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0392

Sequence: 1406238

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-3-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-04

File ID: F050514.seq-19.0000.txt

Sampled: 04/23/14 07:40

Prepared: 05/05/14 16:00

Analyzed: 05/05/14 20:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0392

Sequence: 1406238

Calibration: UNASSIGNED

Instrument: IC6

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-3-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-05

File ID: F050514.seq-24.0000.txt

Sampled: 04/23/14 08:40

Prepared: 05/05/14 16:00

Analyzed: 05/05/14 21:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0392

Sequence: 1406238

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	25	2	D	EPA-314.0

*Handwritten:* 6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-3-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID: F050514.seq-21.0000.txt

Sampled: 04/23/14 08:15

Prepared: 05/05/14 16:00

Analyzed: 05/05/14 21:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0392

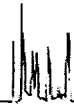
Sequence: 1406238

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-3-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-07

File ID: F050514.seq-22.0000.txt

Sampled: 04/23/14 10:40

Prepared: 05/05/14 16:00

Analyzed: 05/05/14 21:31

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0392

Sequence: 1406238

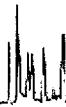
Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

6/10/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-25-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID: F050514.seq-23.0000.txt

Sampled: 04/23/14 12:00

Prepared: 05/05/14 16:00

Analyzed: 05/05/14 21:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0392

Sequence: 1406238

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 5/19/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**MW-25-4**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-09</u>
Sampled: <u>04/23/14 12:40</u>	Prepared: <u>05/05/14 23:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXE0512</u>	Sequence: <u>1406238</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>IC6</u>
	File ID: <u>F050514.seq-37.0000.txt</u>
	Analyzed: <u>05/06/14 01:38</u>
	Initial/Final: <u>20 ml / 20 ml</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	8.5	1		EPA-314.0

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
EPA-314.0

MW-25-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-10</u>	File ID: <u>F050514.seq-33.0000.txt</u>	
Sampled: <u>04/23/14 13:20</u>	Prepared: <u>05/05/14 23:00</u>	Analyzed: <u>05/06/14 00:42</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0512</u>	Sequence: <u>1406238</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	11	1		EPA-314.0

*5/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**MW-25-2**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-11</u>	File ID: <u>F050514.seq-38.0000.txt</u>	
Sampled: <u>04/23/14 13:50</u>	Prepared: <u>05/05/14 23:00</u>	Analyzed: <u>05/06/14 01:52</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0512</u>	Sequence: <u>1406238</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	14	1		EPA-314.0

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-25-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID: F050514.seq-39.0000.txt

Sampled: 04/23/14 14:20

Prepared: 05/05/14 23:00

Analyzed: 05/06/14 02:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0512

Sequence: 1406238

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	11	1		EPA-314.0

6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

EB-3-4/23/14

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-02

File ID: 140424 0951 NO2-074

Sampled: 04/23/14 06:30

Prepared: 04/24/14 09:51

Analyzed: 04/24/14 09:51

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2051

Sequence: 1405637

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

*Handwritten signature/initials and date: 6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID: 140424 0951 NO2-075

Sampled: 04/23/14 07:00

Prepared: 04/24/14 09:51

Analyzed: 04/24/14 09:51

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2051

Sequence: 1405637

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
EPA-353.2

MW-3-4
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-04</u>	File ID: <u>140424 0951 NO2-078</u>	
Sampled: <u>04/23/14 07:40</u>	Prepared: <u>04/24/14 09:51</u>	Analyzed: <u>04/24/14 09:56</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2051</u>	Sequence: <u>1405637</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*5/6/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-3-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-05</u>	File ID: <u>140424.0951 NO2-079</u>	
Sampled: <u>04/23/14 08:40</u>	Prepared: <u>04/24/14 09:51</u>	Analyzed: <u>04/24/14 09:56</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2051</u>	Sequence: <u>1405637</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Handwritten signature and date: 5/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-3-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID: 140424 0951 NO2-080

Sampled: 04/23/14 08:15

Prepared: 04/24/14 09:51

Analyzed: 04/24/14 09:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2051

Sequence: 1405637

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**MW-3-1**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-07

File ID: 140424 0951 NO2-081

Sampled: 04/23/14 10:40

Prepared: 04/24/14 09:51

Analyzed: 04/24/14 09:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2051

Sequence: 1405637

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-25-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID: 140424 0951 NO2-082

Sampled: 04/23/14 12:00

Prepared: 04/24/14 09:51

Analyzed: 04/24/14 09:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2053

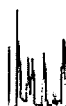
Sequence: 1405637

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-25-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-09

File ID: 140424 0951 NO2-085

Sampled: 04/23/14 12:40

Prepared: 04/24/14 09:51

Analyzed: 04/24/14 09:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2053

Sequence: 1405637

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

*g*  
*6/10/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-25-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-10</u>	File ID: <u>140424 0951 NO2-091</u>	
Sampled: <u>04/23/14 13:20</u>	Prepared: <u>04/24/14 09:51</u>	Analyzed: <u>04/24/14 10:00</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2053</u>	Sequence: <u>1405637</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**MW-25-2**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11

File ID: 140424 0951 NO2-092

Sampled: 04/23/14 13:50

Prepared: 04/24/14 09:51

Analyzed: 04/24/14 10:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2053

Sequence: 1405637

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

*5/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-25-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID: 140424 0951 NO2-093

Sampled: 04/23/14 14:20

Prepared: 04/24/14 09:51

Analyzed: 04/24/14 10:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2053

Sequence: 1405637

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

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

EB-3-4/23/14

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-02

File ID: 140423 2258 CR6-009

Sampled: 04/23/14 06:30

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 22:58

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2042

Sequence: 1405578

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID: 140423 2258 CR6-005

Sampled: 04/23/14 07:00

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 22:58

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2042

Sequence: 1405578

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00075	1	J	EPA-7196

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-3-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-04

File ID: 140423 2258 CR6-010

Sampled: 04/23/14 07:40

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 22:58

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2042

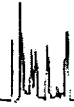
Sequence: 1405578

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00073	1	J	EPA-7196

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**MW-3-2**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-05

File ID: 140423 2258 CR6-011

Sampled: 04/23/14 08:40

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 22:58

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2042

Sequence: 1405578

Calibration: UNASSIGNED

Instrument: KONE-I

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00071	1	J	EPA-7196

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-3-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID: 140423 2258 CR6-012

Sampled: 04/23/14 08:15

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 22:58

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2042

Sequence: 1405578

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00074	1	J	EPA-7196

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-3-1

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-07

File ID: 140423 2258 CR6-015

Sampled: 04/23/14 10:40

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 23:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2042

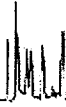
Sequence: 1405578

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-25-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID: 140423 2258 CR6-016

Sampled: 04/23/14 12:00

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 23:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2042

Sequence: 1405578

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

*5/20/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-25-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-09

File ID: 140423 2258 CR6-017

Sampled: 04/23/14 12:40

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 23:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2042

Sequence: 1405578

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

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**MW-25-3**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-10

File ID: 140423 2258 CR6-020

Sampled: 04/23/14 13:20

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 23:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2043

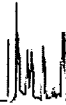
Sequence: 1405578

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0031	1		EPA-7196

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**MW-25-2**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11

File ID: 140423 2258 CR6-024

Sampled: 04/23/14 13:50

Prepared: 04/23/14 22:58

Analyzed: 04/23/14 23:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2043

Sequence: 1405578

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**MW-25-1**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09094</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409094-12</u>	File ID: <u>140423 2258 CR6-027</u>	
Sampled: <u>04/23/14 14:20</u>	Prepared: <u>04/23/14 22:58</u>	Analyzed: <u>04/23/14 23:08</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2043</u>	Sequence: <u>1405578</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Handwritten signature and date: 5/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

EB-3-4/23/14

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-02

File ID: Tiamo042514-012

Sampled: 04/23/14 06:30

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:09

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

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

*Handwritten signature and date: 6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-3-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-03

File ID: Tiamo042514-014

Sampled: 04/23/14 07:00

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:18

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

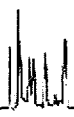
Sequence: 1405781

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	170	1		SM-2320B

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-3-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-04

File ID: Tiamo042514-015

Sampled: 04/23/14 07:40

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:24

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

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	170	1		SM-2320B

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-3-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-05

File ID: Tiamo042514-016

Sampled: 04/23/14 08:40

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

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

*6/10/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-3-3**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-06

File ID: Tiamo042514-017

Sampled: 04/23/14 08:15

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

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	170	1		SM-2320B

*Handwritten signature and date: 6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-3-1**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-07

File ID: Tiamo042514-018

Sampled: 04/23/14 10:40

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:42

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

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

*6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-25-5

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-08

File ID: Tiamo042514-019

Sampled: 04/23/14 12:00

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:48

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	67	1		SM-2320B
3812-32-6	Carbonate	18	1		SM-2320B
---	Total Alkalinity as CaCO3	86	1		SM-2320B

*Handwritten signature and date: 6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-25-4

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-09

File ID: Tiamo042514-020

Sampled: 04/23/14 12:40

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 08:54

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	280	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	230	1		SM-2320B

*K  
6/10/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-25-3

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-10

File ID: Tiamo042514-021

Sampled: 04/23/14 13:20

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 09:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

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

*Handwritten:* 6/10/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 11:59:10AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-25-2

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-11

File ID: Tiamo042514-022

Sampled: 04/23/14 13:50

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 09:06

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2110

Sequence: 1405781

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

*Handwritten signature*  
5/19/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 11:59:10AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-25-1**

Laboratory: BC Laboratories

SDG: 14-09094

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409094-12

File ID: Tiamo042514-027

Sampled: 04/23/14 14:20

Prepared: 04/25/14 07:00

Analyzed: 04/25/14 09:29

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2111

Sequence: 1405781

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

*M*  
*6/10/14*

LDC #: 31898B6  
 SDG #: 14-09094  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III/IV

Date: 6-4-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Nitrite-N (EPA Method 353.2), Hexavalent Chromium (EPA SW846 Method 7196), 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.	Technical holding times	SW	Sampling dates: 4-23-14
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	A	Not reviewed for Level III validation.
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	SW	EB=1

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

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

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

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Method:** Inorganics (EPA Method *See cover*)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
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)	✓			
<b>III. Blanks</b>				
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.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
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) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2\text{X CRDL}$ for soil) was used for samples that were $\leq 5\text{X}$ the CRDL, including when only one of the duplicate sample values were $\leq 5\text{X}$ the CRDL.	✓			
<b>V. Laboratory control samples</b>				
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% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	



LDC #: 31898B6

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			





LDC #: 31898B6  
SDG #:     

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

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

METHOD: Inorganics, EPA Method see cover

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

Sample: 1 Field Blank / Trip Blank / Rinsate (circle one) **EB**

Analyte	Concentration Units ( )
pH	5.75 (pH units)

Sample: \_\_\_\_\_ Field Blank / Trip Blank / Rinsate (circle one)

Analyte	Concentration Units ( )

LDC #: 31898B6

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: \_\_\_\_\_

METHOD: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of NO<sub>2</sub> - N was recalculated. Calibration date: 3-31-14

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

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

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	Reported	Acceptable (Y/N)
					r or %R	r or %R	
Initial calibration	NO <sub>2</sub> -N	Blank	0.00 (mg/L)	0.012	r <sup>2</sup> =0.999880	r <sup>2</sup> =0.999890	Y
		Standard 1	0.02 ( )	0.023			
		Standard 2	0.05 ( )	0.038			
		Standard 3	0.10 ( )	0.064			
		Standard 4	0.50 ( )	0.273			
		Standard 5	1.00 ( ↓ )	0.546			
		Standard 6	-	-			
		Standard 7	-	-			
Calibration verification	Cl	0124 ICV	47.84 (mg/L)	50.00 (mg/L)	95.7	95.6	
Calibration verification	NO <sub>3</sub> -N	0124 ICV	4.87 (mg/L)	5.000 (mg/L)	97.4	97.3	
Calibration verification	Cr VI	2258 CCVI	0.0494 (mg/L)	0.050 (mg/L)	98.8	98.9	↓

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 #: 31898B6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** Inorganics, Method see cover

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS	Laboratory control sample	TDS	600.0 (mg/L)	586.0 (mg/L)	102	102	Y
0526 21	Matrix spike sample	Cl	(SSR-SR) 49.75 (mg/L)	50.505 (mg/L)	98.5	98.5	↓
14	Duplicate sample	pH	5.75 (pH unit)	5.79 (pH unit)	0.693	0.693	

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.

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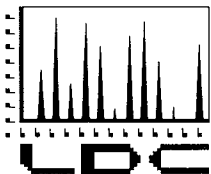


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# LABORATORY DATA CONSULTANTS, INC.

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 13, 2014

SUBJECT: NASA JPL, 2Q2014, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on June 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31915:

<u>SDG #</u>	<u>Fraction</u>
14-09204, 14-09260 14-09332	Volatiles, Polynuclear Aromatic Hydrocarbons, 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



90/10 (client select)

LDC #31915 (Tidewater- Powell, OH / NASA JPL, 2Q2014)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		PAH (8270C-SIM)		Metals (200.7/200.8)		Alk. (2320B)		Cl, SO <sub>4</sub> NO <sub>3</sub> -N (300.0)		NO <sub>2</sub> -N (353.2)		Cr(VI) (7196)		O-OP <sub>4</sub> (365.1)		CLO <sub>4</sub> (314.1)		PH (150.1)		TDS (160.1)																
				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			
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	14-09204	06/03/14	06/24/14	12	0	-	-	11	0	11	0	11	0	11	0	1	0	11	0	11	0	11	0	11	0															
A	14-09204	06/03/14	06/24/14	2	0	-	-	2	0	2	0	2	0	2	0	0	0	2	0	2	0	2	0	2	0															
B	14-09260	06/03/14	06/24/14	11	0	1	0	10	0	10	0	10	0	10	0	-	-	10	0	10	0	10	0	10	0															
B	14-09260	06/03/14	06/24/14	1	0	0	0	1	0	1	0	1	0	1	0	-	-	1	0	1	0	1	0	1	0															
C	14-09332	06/03/14	06/24/14	11	0	1	0	10	0	10	0	10	0	10	0	-	-	-	-	10	0	10	0	10	0															
Total				37	0	2	0	34	0	34	0	34	0	34	0	24	0	1	0	34	0	34	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	302

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

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 24, 2014  
**LDC Report Date:** June 10, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09204

### Sample Identification

TB-4-4/24/14  
SB-2-4/24/14  
EB-4-4/24/14  
MW-22-5\*\*  
MW-22-4  
MW-22-3  
MW-22-2\*\*  
MW-22-1  
MW-24-5  
MW-24-4  
MW-24-3  
MW-24-2  
DUP-2-2Q14  
MW-24-1  
MW-22-1MS  
MW-22-1MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## **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%.

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

## **V. Blanks**

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

## **VI. Surrogate Spikes**

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

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

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

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

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

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

Not applicable.

### **X. Internal Standards**

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

### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria 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.

### **XII. Compound Quantitation**

All compound quantitations were within validation criteria 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. Tentatively Identified Compounds (TICs)**

All tentatively identified compounds were within validation criteria 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. System Performance**

The system performance was 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.

### **XV. Overall Assessment of Data**

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

### **XVI. Field Duplicates**

Samples MW-24-2 and DUP-2-2Q14 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-24-2	DUP-2-2Q14	
Bromodichloromethane	0.88	0.79	11
Chloroform	0.68	0.66	3
Chloromethane	0.14U	0.54	200

## XVII. Field Blanks

Sample TB-4-4/24/14 was identified as a trip blank. No volatile contaminants were found.

Sample EB-4-4/24/14 was identified as an equipment blank. No volatile contaminants were found.

Sample SB-2-4/24/14 was identified as a source blank. No volatile contaminants were found.

**NASA JPL, 2Q2014**

**Volatiles - Data Qualification Summary - SDG 14-09204**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-09204**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-4-4/24/14

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-01 File ID: 25APR08.D  
Sampled: 04/24/14 06:00 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 11:10  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

9/6/2014





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

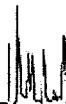
EPA-524.2

TB-4-4/24/14

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-01 File ID: 25APR08.D  
Sampled: 04/24/14 06:00 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 11:10  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

Handwritten signature/initials



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-4-4/24/14

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-01 File ID: 25APR08.D  
Sampled: 04/24/14 06:00 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 11:10  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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	10.630	106	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.010	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3100	93.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	235430	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	78670	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	317083	7.51	336231	7.51	

Handwritten signature and date: 6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

TB-4-4/24/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-01</u>	File ID:	<u>25APR08.D</u>		
Sampled:	<u>04/24/14 06:00</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 11:10</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

SB-2-4/24/14

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-02 File ID: 25APR09.D  
Sampled: 04/24/14 06:30 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 11:32  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

5/19/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

SB-2-4/24/14

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-02 File ID: 25APR09.D  
Sampled: 04/24/14 06:30 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 11:32  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

Handwritten signature and date: 5/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

SB-2-4/24/14

Laboratory: BC Laboratories      SDG: 14-09204  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409204-02      File ID: 25APR09.D  
Sampled: 04/24/14 06:30      Prepared: 04/25/14 08:00      Analyzed: 04/25/14 11:32  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1730      Sequence: 1405612      Calibration: 1404015      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	10.760	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9500	99.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0800	90.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	237482	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	79263	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	322464	7.52	336231	7.51	

*Handwritten signature*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Gonner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

SB-2-4/24/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-02</u>	File ID:	<u>25APR09.D</u>		
Sampled:	<u>04/24/14 06:30</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 11:32</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 5/19/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-4-4/24/14

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-03 File ID: 25APR10.D  
Sampled: 04/24/14 06:40 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 11:55  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-4-4/24/14

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-03 File ID: 25APR10.D  
Sampled: 04/24/14 06:40 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 11:55  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

6/17/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-4-4/24/14

Laboratory: BC Laboratories      SDG: 14-09204  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409204-03      File ID: 25APR10.D  
Sampled: 04/24/14 06:40      Prepared: 04/25/14 08:00      Analyzed: 04/25/14 11:55  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1730      Sequence: 1405612      Calibration: 1404015      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	10.820	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8700	98.7	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1400	91.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	236083	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	78899	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	319841	7.52	336231	7.51	

Handwritten signature and date: 5/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

EB-4-4/24/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-03</u>	File ID:	<u>25APR10.D</u>		
Sampled:	<u>04/24/14 06:40</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 11:55</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

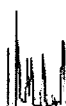
EPA-524.2

MW-22-5

Laboratory: BC Laboratories      SDG: 14-09204  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409204-04      File ID: 25APR11.D  
Sampled: 04/24/14 07:20      Prepared: 04/25/14 08:30      Analyzed: 04/25/14 12:18  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2012      Sequence: 1405612      Calibration: 1404015      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

9/17/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-22-5

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-04 File ID: 25APR11.D  
Sampled: 04/24/14 07:20 Prepared: 04/25/14 08:30 Analyzed: 04/25/14 12:18  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405612 Calibration: 1404015 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

Handwritten signature



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-22-5

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-04 File ID: 25APR11.D  
Sampled: 04/24/14 07:20 Prepared: 04/25/14 08:30 Analyzed: 04/25/14 12:18  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405612 Calibration: 1404015 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	10.720	107	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.240	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)	237252	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	79065	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	309651	7.51	336231	7.51	

Handwritten signature and date: 5/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-22-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-04</u>	File ID:	<u>25APR11.D</u>		
Sampled:	<u>04/24/14 07:20</u>	Prepared:	<u>04/25/14 08:30</u>	Analyzed:	<u>04/25/14 12:18</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-22-4

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-05 File ID: 25APR12.D  
Sampled: 04/24/14 08:00 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 12:40  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

Handwritten signature/initials





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-22-4

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-05 File ID: 25APR12.D  
Sampled: 04/24/14 08:00 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 12:40  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

Handwritten signature/initials: 6/17/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-22-4

Laboratory: BC Laboratories      SDG: 14-09204  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409204-05      File ID: 25APR12.D  
Sampled: 04/24/14 08:00      Prepared: 04/25/14 08:00      Analyzed: 04/25/14 12:40  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1730      Sequence: 1405612      Calibration: 1404015      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	10.800	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.000	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0400	90.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	235294	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	78473	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	312327	7.52	336231	7.51	

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-22-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-05</u>	File ID:	<u>25APR12.D</u>		
Sampled:	<u>04/24/14 08:00</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 12:40</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*g*  
*5/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-22-3

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-06 File ID: 25APR13.D  
Sampled: 04/24/14 08:40 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 13:03  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

Handwritten signature and date: 6/11/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

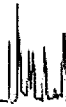
EPA-524.2

MW-22-3

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-06 File ID: 25APR13.D  
Sampled: 04/24/14 08:40 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 13:03  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

9/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-22-3

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-06 File ID: 25APR13.D  
Sampled: 04/24/14 08:40 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 13:03  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 Instrument: MS-V5

Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Lists monitoring compounds and their recovery percentages.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Lists internal standards used for calibration.

Handwritten signature/initials: 5/17/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-22-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-06</u>	File ID:	<u>25APR13.D</u>		
Sampled:	<u>04/24/14 08:40</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 13:03</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

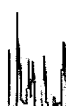
MW-22-2

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-07 File ID: 25APR14.D  
Sampled: 04/24/14 09:15 Prepared: 04/25/14 08:30 Analyzed: 04/25/14 13:25  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405612 Calibration: 1404015 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

8/12/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-22-2

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-07 File ID: 25APR14.D  
Sampled: 04/24/14 09:15 Prepared: 04/25/14 08:30 Analyzed: 04/25/14 13:25  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2012 Sequence: 1405612 Calibration: 1404015 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

Handwritten signature/initials: 5/17/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-22-2

Laboratory: BC Laboratories      SDG: 14-09204  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409204-07      File ID: 25APR14.D  
Sampled: 04/24/14 09:15      Prepared: 04/25/14 08:30      Analyzed: 04/25/14 13:25  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2012      Sequence: 1405612      Calibration: 1404015      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	10.910	109	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.340	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.6100	86.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	235184	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	79766	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	304954	7.52	336231	7.51	

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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-22-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-07</u>	File ID:	<u>25APR14.D</u>		
Sampled:	<u>04/24/14 09:15</u>	Prepared:	<u>04/25/14 08:30</u>	Analyzed:	<u>04/25/14 13:25</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2012</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 5/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-22-1

Laboratory: BC Laboratories SDG: 14-09204  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409204-08 File ID: 25APR15.D  
 Sampled: 04/24/14 09:50 Prepared: 04/25/14 08:03 Analyzed: 04/25/14 13:48  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2121 Sequence: 1405612 Calibration: 1404015 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	0.41	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

*Handwritten signature/initials*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-22-1

Laboratory: BC Laboratories      SDG: 14-09204  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409204-08      File ID: 25APR15.D  
Sampled: 04/24/14 09:50      Prepared: 04/25/14 08:03      Analyzed: 04/25/14 13:48  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2121      Sequence: 1405612      Calibration: 1404015      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	11.300	113	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0100	90.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	232087	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	78964	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	306979	7.51	336231	7.51	

5/17/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-22-1

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-08</u>	File ID:	<u>25APR15.D</u>		
Sampled:	<u>04/24/14 09:50</u>	Prepared:	<u>04/25/14 08:03</u>	Analyzed:	<u>04/25/14 13:48</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2121</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 5/17/14*



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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-24-5

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-09 File ID: 25APR16.D  
Sampled: 04/24/14 10:45 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 14:11  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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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6/12/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

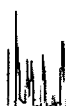
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-24-5

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-09 File ID: 25APR16.D  
Sampled: 04/24/14 10:45 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 14:11  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

*8/6/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-24-5

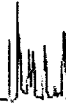
Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-09 File ID: 25APR16.D  
Sampled: 04/24/14 10:45 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 14:11  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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	11.010	110	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.030	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1000	91.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	231744	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	76992	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	306687	7.51	336231	7.51	

Handwritten signature



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

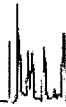
**EPA-524.2**

MW-24-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-09</u>	File ID:	<u>25APR16.D</u>		
Sampled:	<u>04/24/14 10:45</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 14:11</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature/initials and date: 5/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-24-4

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-10 File ID: 25APR17.D  
Sampled: 04/24/14 11:30 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 14:33  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

Handwritten signature and date: 6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-24-4

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-10 File ID: 25APR17.D  
Sampled: 04/24/14 11:30 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 14:33  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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	0.13	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

Handwritten signature and date: 5/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-24-4

Laboratory: BC Laboratories      SDG: 14-09204  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409204-10      File ID: 25APR17.D  
Sampled: 04/24/14 11:30      Prepared: 04/25/14 08:00      Analyzed: 04/25/14 14:33  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1730      Sequence: 1405612      Calibration: 1404015      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	10.820	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8400	98.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3300	93.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	228220	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	76667	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	309692	7.51	336231	7.51	

Handwritten signature and date: 5/17/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-24-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-10</u>
Sampled:	<u>04/24/14 11:30</u>	Prepared:	<u>04/25/14 08:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*9/6/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

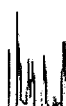
MW-24-3

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-11 File ID: 25APR18.D  
Sampled: 04/24/14 12:05 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 14:56  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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	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: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-24-3

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-11 File ID: 25APR18.D  
Sampled: 04/24/14 12:05 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 14:56  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

2  
6/2/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-24-3

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-11 File ID: 25APR18.D  
Sampled: 04/24/14 12:05 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 14:56  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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	10.800	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.180	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0500	90.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	229043	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	75696	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	293885	7.51	336231	7.51	

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-24-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-11</u>	File ID:	<u>25APR18.D</u>		
Sampled:	<u>04/24/14 12:05</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 14:56</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*9/6/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-24-2

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-12 File ID: 25APR19.D  
Sampled: 04/24/14 12:40 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 15:18  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

9/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-24-2

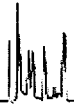
Laboratory: BC Laboratories      SDG: 14-09204  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409204-12      File ID: 25APR19.D  
Sampled: 04/24/14 12:40      Prepared: 04/25/14 08:00      Analyzed: 04/25/14 15:18  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1730      Sequence: 1405612      Calibration: 1404015      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	11.270	113	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.060	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9400	89.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	227326	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	76803	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	301593	7.52	336231	7.51	

9/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-24-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-12</u>	File ID:	<u>25APR19.D</u>		
Sampled:	<u>04/24/14 12:40</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 15:18</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

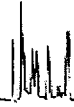
DUP-2-2Q14

Laboratory: BC Laboratories      SDG: 14-09204  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409204-13      File ID: 25APR20.D  
Sampled: 04/24/14 13:00      Prepared: 04/25/14 08:00      Analyzed: 04/25/14 15:41  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD1730      Sequence: 1405612      Calibration: 1404015      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	0.79	
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	0.54	
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

6/12/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/19/2014 12:06:33PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
EPA-524.2

DUP-2-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-13</u>	File ID: <u>25APR20.D</u>	
Sampled: <u>04/24/14 13:00</u>	Prepared: <u>04/25/14 08:00</u>	Analyzed: <u>04/25/14 15:41</u>	
Solids:	Preparation: <u>EPA 5030 Water MS</u>	Initial/Final: <u>25 ml / 25 ml</u>	
Batch: <u>BXD1730</u>	Sequence: <u>1405612</u>	Calibration: <u>1404015</u>	Instrument: <u>MS-V5</u>

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

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

DUP-2-2Q14

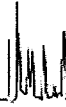
Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-13 File ID: 25APR20.D  
Sampled: 04/24/14 13:00 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 15:41  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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	11.150	112	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.090	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3000	93.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	227870	6.73	241318	6.73	
Chlorobenzene-d5 (IS)	74021	9.73	85011	9.73	
1,4-Difluorobenzene (IS)	301264	7.52	336231	7.51	

9/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

DUP-2-2Q14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-13</u>	File ID:	<u>25APR20.D</u>		
Sampled:	<u>04/24/14 13:00</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 15:41</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-24-1

Laboratory: BC Laboratories SDG: 14-09204  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409204-14 File ID: 25APR21.D  
Sampled: 04/24/14 13:45 Prepared: 04/25/14 08:00 Analyzed: 04/25/14 16:03  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD1730 Sequence: 1405612 Calibration: 1404015 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

*Handwritten signature and date: 6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/19/2014 12:06:33PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-24-1

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09204</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409204-14</u>	File ID:	<u>25APR21.D</u>		
Sampled:	<u>04/24/14 13:45</u>	Prepared:	<u>04/25/14 08:00</u>	Analyzed:	<u>04/25/14 16:03</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD1730</u>	Sequence:	<u>1405612</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*9/6/14*

LDC #: 31915A1  
 SDG #: 14-09204  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III/IV

Date: 6/5/14  
 Page: 1 of 1  
 Reviewer: kn  
 2nd Reviewer: [Signature]

**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.	Technical holding times	A	Sampling dates: 4/24/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 20%, r <sup>2</sup>
IV.	Continuing calibration/ICV	A	ICV/CCV ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	DN	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	FD = 12 + 13
XVII.	Field blanks	ND	TB = 1 SB = 2 EB = 3

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

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

Water

1	TB-4-4/24/14	11	MW-24-3	21		31	RXD 2121-BLK 1
2	SB-2-4/24/14	12	MW-24-2	22		32	
3	EB-4-4/24/14	13	DUP-2-2Q14	23		33	
4	MW-22-5**	14	MW-24-1	24		34	
5	MW-22-4	15	MW-22-1MS	25		35	
6	MW-22-3	16	MW-22-1MSD	26		36	
7	MW-22-2**	17		27		37	
8	MW-22-1	18		28		38	
9	MW-24-5	19		29		39	
10	MW-24-4	20		30		40	



**Method:** Volatiles (EPA Method 524.2)

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

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
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?	/			
<b>XI. Target compound identification</b>				
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?	/			
<b>XII. Compound quantitation/RLs</b>				
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?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?	/			
Were relative intensities of the major ions within $\pm$ 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	/			
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target compounds were detected in the field duplicates.	/			
<b>XVII. Field blanks</b>				
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 chloride	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.

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**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 ( <u>µg/L</u> )		RPD
	12	13	
P	0.88	0.79	11
K	0.68	0.66	3
A	0.146	0.54	200

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 31915A1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

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

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,

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	4/8/2014	1,1-Dichloroethene (IS1)	0.804240	0.804240	0.7866686	0.7866686	13.1477	13.1477
	MS-V5		Trichloroethene (IS2)	0.330604	0.330604	0.3303824	0.3303824	9.748455	9.748462
			1,1,2,2-Tetrachloethane	0.544418	0.544418	0.5527675	0.5527675	2.742399	2.742366

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 #: 31915A1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 2 of 2  
Reviewer: BR  
2nd Reviewer: [Signature]

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<sub>x</sub> = Area of Compound

C<sub>x</sub> = Concentration of compound,

S= Standard deviation of the RRFs,

A<sub>is</sub> = Area of associated internal standard

C<sub>is</sub> = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 32/80 std)	Recalculated RRF (RRF 32/80 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	2/5/2014	Allyl chloride (IS1)	0.741567	0.741567	0.737045	0.737045	6.962034	6.962036
	MS-V5		Methyl methacrylate (IS2)	0.084568	0.084568	0.08916918	0.08916918	5.522741	5.522764
			Pentachloroethane (IS3)	0.638115	0.638115	0.5958182	0.5958182	14.21785	14.21786

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#: 31915A1

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: BR  
 2nd Reviewer: [Signature]

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:

Where:  
 $\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$   
 ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 Ax = Area of compound,  
 Cx = Concentration of compound,  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported % D	Recalculated %D
1	25APR03	4/25/2014	1,1-Dichloroethene (IS1)	0.786669	0.766242	0.766242	2.6	2.6
			Trichloroethene (IS2)	0.330382	0.3133397	0.3133397	5.2	5.2
			1,1,2,2-Tetrachloethane	0.552767	0.6093234	0.6093234	10.2	10.2
2	25APR04	4/25/2014	Allyl chloride (IS1)	0.737045	0.645203	0.645203	12.5	12.5
			Methyl methacrylate (IS2)	0.089169	0.07690063	0.07690063	13.8	13.8
			Pentachloroethane (IS3)	0.595818	0.7030046	0.7030046	18.0	18.0

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.

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**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	10.00	10.24	102	102	0
Bromofluorobenzene	↓	9.38	93.8	93.8	0
1,2-Dichlorobenzene-d4	↓	10.72	107	107	0
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					

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

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



**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

METHOD: GC/MS VOA (EPA Method 524.2)

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

$$\% \text{Recovery} = 100 * (\text{SSC} - \text{SC}) / \text{SA}$$

Where: SSC = Spiked sample concentration  
SA = Spike added

SC = Sample concentration

$$\text{RPD} = [(\text{MSC} - \text{MSDC}) * 2] / (\text{MSC} + \text{MSDC}) * 100$$

MSC = Matrix spike percent recovery

MSDC = Matrix spike duplicate percent recovery

MS/MSD samples: 15/16

Compound	Spike Added		Sample Conc.	Spiked Sample Concentration		Matrix spike		Matrix Spike Duplicate		MS/MSD	
	(µg/L)		(µg/L)	(µg/L)		Percent Recovery		Percent Recovery		RPD	
	MS	MSD	-----	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
1,1-Dichloroethene	25.00	25.00	0	26.690	25.830	107%	107%	103%	103%	3.27%	3.27%
Trichloroethene	25.00	25.00	1.4	28.070	29.530	107%	107%	113%	113%	5.07%	5.07%
Benzene	25.00	25.00	0	23.570	23.440	94.3%	94.3%	93.8%	93.8%	0.553%	0.553%
Toluene	25.00	25.00	0	26.250	25.850	105%	105%	103%	103%	1.54%	1.54%
Chlorobenzene	25.00	25.00	0	26.180	26.620	105%	105%	106%	106%	1.67%	1.67%

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

LDC #: 319(SA)

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
 Reviewer: BR  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA Method 524.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory 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 = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS ID: BXD 2121-B51

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.00	-	27.34	-	109	109	Z		Z	
Trichloroethene			28.74		115	115				
Benzene			24.030		96.1	96.1				
Toluene			26.670		107	107				
Chlorobenzene			26.590		106	106				

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



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 24, 2014  
**LDC Report Date:** June 11, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09204

### Sample Identification

SB-2-4/24/14  
EB-4-4/24/14  
MW-22-5\*\*  
MW-22-4  
MW-22-3  
MW-22-2\*\*  
MW-22-1  
MW-24-5  
MW-24-4  
MW-24-3  
MW-24-2  
DUP-2-2Q14  
MW-24-1  
MW-22-1MS  
MW-22-1MSD  
MW-22-1DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 200.7 and 200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron	20.003 ug/L	MW-24-2
ICB/CCB	Iron	34.311 ug/L	MW-24-2
PB (prep blank)	Iron	21.759 ug/L	SB-2-4/24/14 EB-4-4/24/14 MW-22-5** MW-22-4 MW-22-3 MW-22-2** MW-22-1 MW-24-5 MW-24-4 MW-24-3
ICB/CCB	Chromium Iron	1.4200 ug/L 34.311 ug/L	SB-2-4/24/14 EB-4-4/24/14 MW-22-5** MW-22-4 MW-22-3 MW-22-2** MW-22-1 MW-24-5 MW-24-4 MW-24-3
ICB/CCB	Iron	23.948 ug/L	DUP-2-2Q14 MW-24-1

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Arsenic	0.75200 ug/L	SB-2-4/24/14 EB-4-4/24/14 MW-22-5** MW-22-4 MW-22-3 MW-22-2** MW-24-5 MW-24-4 MW-24-3
PB (prep blank)	Magnesium Sodium	0.038594 mg/L 0.026463 mg/L	MW-24-2
ICB/CCB	Magnesium Sodium	0.041531 mg/L 0.040810 mg/L	MW-24-2
PB (prep blank)	Calcium Magnesium Sodium	0.027467 mg/L 0.027593 mg/L 0.072857 mg/L	SB-2-4/24/14 EB-4-4/24/14 MW-22-4 MW-22-3 MW-22-2** MW-22-1 MW-24-5 MW-24-4 MW-24-3
ICB/CCB	Magnesium Sodium	0.041531 mg/L 0.044708 mg/L	SB-2-4/24/14 MW-22-1
ICB/CCB	Magnesium Sodium	0.041531 mg/L 0.049794 mg/L	EB-4-4/24/14 MW-22-4 MW-22-3 MW-22-2** MW-24-5 MW-24-4 MW-24-3
PB (prep blank)	Sodium	0.073667 mg/L	DUP-2-2Q14
ICB/CCB	Calcium Sodium	0.022459 mg/L 0.12768 mg/L	DUP-2-2Q14
PB (prep blank)	Potassium Sodium	0.32070 mg/L 0.10017 mg/L	MW-22-5** MW-24-1
ICB/CCB	Calcium Magnesium Potassium Sodium	0.026993 mg/L 0.023222 mg/L 0.34298 mg/L 0.11669 mg/L	MW-22-5**
ICB/CCB	Potassium Sodium	0.15909 mg/L 0.060757 mg/L	MW-24-1

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SB-2-4/24/14	Chromium Calcium Sodium	0.52 ug/L 0.036 mg/L 0.064 mg/L	0.52U ug/L 0.036U mg/L 0.064U mg/L
EB-4-4/24/14	Chromium Iron Calcium Magnesium Sodium	0.64 ug/L 20 ug/L 0.031 mg/L 0.024 mg/L 0.045 mg/L	0.64U ug/L 20U ug/L 0.031U mg/L 0.024U mg/L 0.045U mg/L
MW-22-5**	Iron Arsenic Potassium	63 ug/L 0.72 ug/L 0.95 mg/L	63U ug/L 0.72U ug/L 0.95U mg/L
MW-22-4	Chromium Iron Arsenic	1.9 ug/L 77 ug/L 1.1 ug/L	1.9U ug/L 77U ug/L 1.1U ug/L
MW-22-3	Chromium Iron Arsenic	2.5 ug/L 22 ug/L 1.2 ug/L	2.5U ug/L 22U ug/L 1.2U ug/L
MW-22-2**	Chromium Iron Arsenic	1.7 ug/L 53 ug/L 1.2 ug/L	1.7U ug/L 53U ug/L 1.2U ug/L
MW-22-1	Chromium	0.73 ug/L	0.73U ug/L
MW-24-5	Chromium Iron Arsenic	2.5 ug/L 50 ug/L 2.4 ug/L	2.5U ug/L 50U ug/L 2.4U ug/L
MW-24-4	Chromium Iron Arsenic	0.60 ug/L 84 ug/L 1.3 ug/L	0.60U ug/L 84U ug/L 1.3U ug/L
MW-24-3	Iron Arsenic	62 ug/L 2.2 ug/L	62U ug/L 2.2U ug/L
MW-24-2	Iron	29 ug/L	29U ug/L
DUP-2-2Q14	Iron	45 ug/L	45U ug/L



**V. ICP Interference Check Sample (ICS) Analysis**

The frequency of analysis was met.

The criteria for analysis were met.

**VI. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For MW-20-4MS/MSD, no data were qualified for Calcium and Sodium percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

**VII. Duplicate Sample Analysis**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

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

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

**IX. Internal Standards**

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.

**X. ICP Serial Dilution**

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

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
MW-22-1	Iron	12.3 (≤10)	SB-2-4/24/14 EB-4-4/24/14 MW-22-5** MW-22-4 MW-22-3 MW-22-2** MW-22-1 MW-24-5 MW-24-4 MW-24-3	J (all detects) UJ (all non-detects)	A

## XI. 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.

## XII. Overall Assessment of Data

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

## XIII. Field Duplicates

Samples MW-24-2 and DUP-2-2Q14 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-24-2	DUP-2-2Q14	
Arsenic	2.2	2.5	13
Calcium	49000	48000	2
Chromium	2.0	2.4	18
Iron	29	45	43
Magnesium	16000	16000	0
Potassium	3000	3000	0
Sodium	45000	43000	5

## XIV. Field Blanks

Sample SB-2-4/24/14 was identified as a source blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
SB-2-4/24/14	Chromium Calcium Sodium	0.52 ug/L 0.036 mg/L 0.064 mg/L

Sample EB-4-4/24/14 was identified as an equipment blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-4-4/24/14	Iron Chromium Calcium Magnesium Sodium	20 ug/L 0.64 ug/L 0.031 mg/L 0.024 mg/L 0.045 mg/L

**NASA JPL, 2Q2014**  
**Metals - Data Qualification Summary - SDG 14-09204**

SDG	Sample	Analyte	Flag	A or P	Reason
14-09204	SB-2-4/24/14 EB-4-4/24/14 MW-22-5** MW-22-4 MW-22-3 MW-22-2** MW-22-1 MW-24-5 MW-24-4 MW-24-3	Iron	J (all detects) UJ (all non-detects)	A	Serial dilution (%D)

**NASA JPL, 2Q2014**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 14-09204**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09204	SB-2-4/24/14	Chromium Calcium Sodium	0.52U ug/L 0.036U mg/L 0.064U mg/L	A
14-09204	EB-4-4/24/14	Chromium Iron Calcium Magnesium Sodium	0.64U ug/L 20U ug/L 0.031U mg/L 0.024U mg/L 0.045U mg/L	A
14-09204	MW-22-5**	Iron Arsenic Potassium	63U ug/L 0.72U ug/L 0.95U mg/L	A
14-09204	MW-22-4	Chromium Iron Arsenic	1.9U ug/L 77U ug/L 1.1U ug/L	A
14-09204	MW-22-3	Chromium Iron Arsenic	2.5U ug/L 22U ug/L 1.2U ug/L	A
14-09204	MW-22-2**	Chromium Iron Arsenic	1.7U ug/L 53U ug/L 1.2U ug/L	A
14-09204	MW-22-1	Chromium	0.73U ug/L	A
14-09204	MW-24-5	Chromium Iron Arsenic	2.5U ug/L 50U ug/L 2.4U ug/L	A

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09204	MW-24-4	Chromium Iron Arsenic	0.60U ug/L 84U ug/L 1.3U ug/L	A
14-09204	MW-24-3	Iron Arsenic	62U ug/L 2.2U ug/L	A
14-09204	MW-24-2	Iron	29U ug/L	A
14-09204	DUP-2-2Q14	Iron	45U ug/L	A



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

SB-2-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-02

File ID: PE2 140501-135

Sampled: 04/24/14 06:30

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:01

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

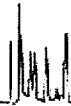
Sequence: 1406153

Calibration: UNASSIGNED

Instrument: PE-OP2

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

EB-4-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-03

File ID: PE2\_140501-139

Sampled: 04/24/14 06:40

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:11

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence:

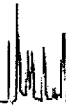
1406153

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	20 J	1	J	EPA-200.7

*Handwritten:* 6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-22-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-04

File ID: PE2\_140501-140

Sampled: 04/24/14 07:20

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:13

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence: 1406153

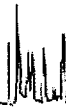
Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	63 <i>UJ</i>	1		EPA-200.7

*6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-22-4
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-05</u>	File ID: <u>PE2_140501-141</u>	
Sampled: <u>04/24/14 08:00</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 21:16</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2424</u>	Sequence: <u>1406153</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	77 <i>UJ</i>	1		EPA-200.7

*5/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-22-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-06

File ID: PE2\_140501-142

Sampled: 04/24/14 08:40

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:18

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence: 1406153

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	22 <i>UJ</i>	1	J	EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-22-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-07

File ID: PE2\_140501-143

Sampled: 04/24/14 09:15

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:21

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

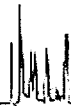
Sequence: 1406153

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	53 <i>UJ</i>	1		EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-22-1**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-08</u>
Sampled: <u>04/24/14 09:50</u>	File ID: <u>PE2_140501-129</u>
Solids: <u>0.00</u>	Prepared: <u>04/29/14 08:30</u>
Batch: <u>BXD2424</u>	Sequence: <u>1406153</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-OP2</u>
	Analized: <u>05/01/14 20:45</u>
	Initial/Final: <u>50 ml / 50 ml</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	590 <i>J</i>	1		EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-24-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-09</u>	File ID: <u>PE2_140501-144</u>	
Sampled: <u>04/24/14 10:45</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 21:23</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2424</u>	Sequence: <u>1406153</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	50 <i>WJ</i>	1		EPA-200.7

*6/12/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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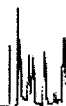
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-24-4
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-10</u>	File ID: <u>PE2_140501-145</u>	
Sampled: <u>04/24/14 11:30</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 21:26</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2424</u>	Sequence: <u>1406153</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	84 <i>WJ</i>	1		EPA-200.7

*6/17/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-24-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-11</u>	File ID: <u>PE2_140501-146</u>	
Sampled: <u>04/24/14 12:05</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 21:28</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2424</u>	Sequence: <u>1406153</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	62 <i>UJ</i>	1		EPA-200.7

*6/17/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-24-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-12</u>	File ID: <u>PE2_140501-063</u>	
Sampled: <u>04/24/14 12:40</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 17:38</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2426</u>	Sequence: <u>1406085</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	29 <i>VA</i>	1	J	EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

DUP-2-2Q14
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-13</u>	File ID: <u>PE2_140505-048</u>	
Sampled: <u>04/24/14 13:00</u>	Prepared: <u>04/30/14 08:00</u>	Analyzed: <u>05/05/14 16:20</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2585</u>	Sequence: <u>1406199</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	45 <i>u</i>	1	J	EPA-200.7

*9/6/12/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-24-1
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-14</u>	File ID: <u>PE2_140505-054</u>	
Sampled: <u>04/24/14 13:45</u>	Prepared: <u>04/30/14 08:00</u>	Analyzed: <u>05/05/14 16:38</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2585</u>	Sequence: <u>1406199</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	200	1		EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

SB-2-4/24/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-02</u>	File ID: <u>PE_EL2_140501-110</u>	
Sampled: <u>04/24/14 06:30</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 23:54</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2427</u>	Sequence: <u>1405990</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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	0.52 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

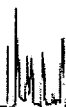
**EPA-200.8**

EB-4-4/24/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-03</u>	File ID: <u>PE_EL2_140501-111</u>	
Sampled: <u>04/24/14 06:40</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 23:57</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2427</u>	Sequence: <u>1405990</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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	0.64 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/17/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-22-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-04</u>
Sampled: <u>04/24/14 07:20</u>	Prepared: <u>04/29/14 08:30</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>
Batch: <u>BXD2427</u>	Sequence: <u>1405990</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-EL2</u>
	File ID: <u>PE_EL2_140501-112</u>
	Analyzed: <u>05/02/14 00:00</u>
	Initial/Final: <u>50 ml / 50 ml</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.72 <i>u</i>	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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-22-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-05

File ID: PE\_EL2\_140501-113

Sampled: 04/24/14 08:00

Prepared: 04/29/14 08:30

Analyzed: 05/02/14 00:03

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2427

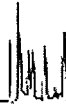
Sequence: 1405990

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.1 U	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.9 U	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-22-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-06

File ID: PE\_EL2 140501-114

Sampled: 04/24/14 08:40

Prepared: 04/29/14 08:30

Analyzed: 05/02/14 00:07

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2427

Sequence: 1405990

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.2 <i>u</i>	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	2.5 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*5/6/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-22-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-07

File ID: PE\_EL2 140501-115

Sampled: 04/24/14 09:15

Prepared: 04/29/14 08:30

Analyzed: 05/02/14 00:10

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2427

Sequence: 1405990

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.2 <i>u</i>	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.7 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-22-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-08

File ID: PE\_EL2 140501-091

Sampled: 04/24/14 09:50

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 22:47

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2427

Sequence: 1405990

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 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**MW-24-5**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-09

File ID: PE EL2 140501-116

Sampled: 04/24/14 10:45

Prepared: 04/29/14 08:30

Analyzed: 05/02/14 00:13

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2427

Sequence: 1405990

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.4 <i>u</i>	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	2.5 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*5/30/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

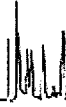
**EPA-200.8**

MW-24-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-10</u>	File ID: <u>PE_EL2_140501-117</u>	
Sampled: <u>04/24/14 11:30</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/02/14 00:16</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2427</u>	Sequence: <u>1405990</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.3 <i>u</i>	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.60 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*9/6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**MW-24-3**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-11

File ID: PE\_EL2\_140501-118

Sampled: 04/24/14 12:05

Prepared: 04/29/14 08:30

Analyzed: 05/02/14 00:20

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2427

Sequence: 1405990

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.2 <i>u</i>	1		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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-24-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-12

File ID: PE\_EL2\_140502-027

Sampled: 04/24/14 12:40

Prepared: 04/29/14 08:30

Analyzed: 05/02/14 09:33

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2429

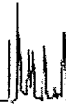
Sequence: 1406075

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.2	1		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

*Handwritten signature/initials: JPL 5/30/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**DUP-2-2Q14**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-13

File ID: PE\_EL2\_140502-028

Sampled: 04/24/14 13:00

Prepared: 04/29/14 08:30

Analyzed: 05/02/14 09:36

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2429

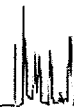
Sequence: 1406075

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.5	1		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

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

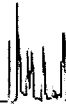
**EPA-200.8**

MW-24-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-14</u>	File ID: <u>PE EL2 140502-033</u>	
Sampled: <u>04/24/14 13:45</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/02/14 09:57</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2429</u>	Sequence: <u>1406075</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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	16	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

9/6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

SB-2-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-02

File ID: PE2 140501-135

Sampled: 04/24/14 06:30

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:01

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence: 1406153

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.036 <i>u</i>	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.064 <i>u</i>	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

*Handwritten signature and date: 6/11/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-4-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-03

File ID: PE2\_140501-139

Sampled: 04/24/14 06:40

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:11

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence: 1406153

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.031 <i>u</i>	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.024 <i>u</i>	1	JB	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.045 <i>u</i>	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

*Handwritten signature/initials and date: 5/30/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-22-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-04RE1</u>	File ID: <u>PE2_140512R1-061</u>	
Sampled: <u>04/24/14 07:20</u>	Prepared: <u>05/09/14 08:30</u>	Analyzed: <u>05/12/14 18:58</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0839</u>	Sequence: <u>1406636</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	6.3	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	1.6	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	68	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	0.95	1 <i>u</i>	J	EPA-200.7

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-22-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-05

File ID: PE2 140501-141

Sampled: 04/24/14 08:00

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:16

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence: 1406153

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	36	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	11	1	B	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

*Handwritten signature and date: 5/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-22-3**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-06

File ID: PE2 140501-142

Sampled: 04/24/14 08:40

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:18

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence: 1406153

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	17	1	B	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

*Handwritten signature and date: 6/17/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-22-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-07

File ID: PE2 140501-143

Sampled: 04/24/14 09:15

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:21

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence: 1406153

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	62	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	24	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	32	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

*9/6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-22-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-08

File ID: PE2\_140501-129

Sampled: 04/24/14 09:50

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 20:45

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence: 1406153

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	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	35	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-24-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-09

File ID: PE2 140501-144

Sampled: 04/24/14 10:45

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 21:23

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2424

Sequence: 1406153

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	9.5	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.8	1		EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-24-4**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-10</u>
Sampled: <u>04/24/14 11:30</u>	Prepared: <u>04/29/14 08:30</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>
Batch: <u>BXD2424</u>	Sequence: <u>1406153</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-OP2</u>
	File ID: <u>PE2 140501-145</u>
	Analyzed: <u>05/01/14 21:26</u>
	Initial/Final: <u>50 ml / 50 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	6.1	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	6.7	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	34	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.7	1		EPA-200.7

*9/6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-24-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-11</u>	File ID: <u>PE2_140501-146</u>	
Sampled: <u>04/24/14 12:05</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 21:28</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2424</u>	Sequence: <u>1406153</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

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	14	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	44	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

*9/6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-24-2**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-12

File ID: PE2\_140501-063

Sampled: 04/24/14 12:40

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 17:38

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

Sequence: 1406085

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	16	1	B	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

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:05:11PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

DUP-2-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-13</u>
Sampled: <u>04/24/14 13:00</u>	File ID: <u>PE2_140505-048</u>
Solids: <u>0.00</u>	Prepared: <u>04/30/14 08:00</u>
Batch: <u>BXD2585</u>	Preparation: <u>EPA 200.2</u>
Sequence: <u>1406199</u>	Initial/Final: <u>50 ml / 50 ml</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-OF2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	48	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	16	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

*Handwritten signature and date: JG/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:05:11PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14RE1

File ID: PE2\_140512R1-065

Sampled: 04/24/14 13:45

Prepared: 04/30/14 08:00

Analyzed: 05/12/14 19:07

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0839

Sequence: 1406636

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	80	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	26	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	43	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	4.5	1		EPA-200.7

*Handwritten signature and date: 5/12/14*

LDC #: 31915A4  
 SDG #: 14-09204  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III/IV

Date: 6-9-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: K

**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.	Technical holding times	A	Sampling dates: 4-24-14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	A	MS/MSD (SDG: 14-09260) Ca, Mg - 4x
VII.	Duplicate Sample Analysis	A	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	A	not reviewed for level III
X.	ICP Serial Dilution	SW	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	D = 11 + 12
XIV.	Field Blanks	SW	SB = 1 EB = 2

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

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

*all water*

1	SB-2-4/24/14	11	MW-24-2	21		31	
2	EB-4-4/24/14	12	DUP-2-2Q14	22		32	
3	MW-22-5**	13	MW-24-1	23		33	
4	MW-22-4	14	MW-22-1MS	24		34	
5	MW-22-3	15	MW-22-1MSD	25		35	
6	MW-22-2**	16	MW-22-1DUP	26		36	
7	MW-22-1	17		27		37	
8	MW-24-5	18		28		38	PBW1
9	MW-24-4	19		29		39	PBW2
10	MW-24-3	20		30		40	PBW3

Notes: PBW4

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

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution $\leq 5\%$ ?	✓			
<b>III. Calibration</b>				
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 $> 0.995$ ?	✓			
<b>IV. Blanks</b>				
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.	✓			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
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) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\pm RL$ ( $\pm 2X RL$ for soil) was used for samples that were $\leq 5X$ the RL, including when only one of the duplicate sample values were $< 5X$ the RL.	✓			
<b>VII. Laboratory control samples</b>				
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?	✓			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
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?			✓	
<b>IX. ICP Serial Dilution</b>				
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.		✓		
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			





LDC #: 31915A4  
 SDG #: See Cover

VALIDATION FINDINGS WORKSHEET  
 PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 3  
 Reviewer: MG  
 2nd Reviewer: R

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: 11

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	11									
Fe		20.003	34.311	171.6	29									

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 1-10

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1	2	3	4	5	6	7	8	9	10
Cr			1.4200	7.10	0.52	0.64		1.9	2.5	1.7	0.73	2.5	0.60	
Fe		21.759	34.311	171.6		20	63	77	22	53		50	84	62

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 12,13

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	12									
Fe			23.948	119.7	45									

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 1-6,8-10

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	3	4	5	6	8	9	10			
As			0.75200	3.76	0.72	1.1	1.2	1.2	2.4	1.3	2.2			

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 11 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Mg		0.038594	0.041531	0.208										
Na		0.026463	0.040810	0.204										

LDC #: 31915A4  
 SDG #: See Cover

**VALIDATION FINDINGS WORKSHEET**  
**PB/ICB/CCB QUALIFIED SAMPLES**

Page: 2 of 3  
 Reviewer: MG  
 2nd Reviewer: R

**METHOD:** Trace metals (EPA SW 864 Method 6010B/6020/7000)  
 Sample Concentration units, unless otherwise noted: mg/L

Soil preparation factor applied: NA  
 Associated Samples: 1,2,4-10

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1	2								
Ca		0.027467		0.137	0.036	0.031								
Mg		0.027593		0.138		0.024								
Na		0.072857		0.364	0.064	0.045								

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1,7

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1									
Mg			0.041531	0.208										
Na			0.044708	0.224	see PB									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 2,4-6,8-10

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	2									
Mg			0.041531	0.208	see PB									
Na			0.049794	0.249	see PB									

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

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Ca			0.022459	0.112										
Na		0.073667	0.12768	0.638										

LDC #: 31915A4

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: 3,13

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	3									
K		0.32070		1.604	0.95									
Na		0.10017		0.501										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 3

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	3									
Ca			0.026993	0.135										
Mg			0.023222	0.116										
K			0.34298	1.715	see PB									
Na			0.11669	0.583										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 13 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
K			0.15909	0.795										
Na			0.060757	0.304										

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.



VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (ug/L)		RPD	
	11	12		
Arsenic	2.2	2.5	13	
Calcium	49000	48000	2	
Chromium	2.0	2.4	18	
Iron	29	45	43	
Magnesium	16000	16000	0	
Potassium	3000	3000	0	
Sodium	45000	43000	5	



LDC #: 31915A4

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

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

**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:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       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	Reported	Acceptable (Y/N)
					%R	%R	
<u>1528</u> ICV	ICP (Initial calibration)	<u>Na</u>	<u>50730</u>	<u>50000</u>	<u>101</u>	<u>101</u>	<u>Y</u>
<u>1758</u> ICV	ICP/MS (Initial calibration)	<u>Pb</u>	<u>129.743</u>	<u>125.0</u>	<u>104</u>	<u>104</u>	↓
	CVAA (Initial calibration)						
<u>2103</u> CCV5	ICP (Continuing calibration)	<u>K</u>	<u>48210</u>	<u>50000</u>	<u>96.4</u>	<u>96.4</u>	↓
<u>2347</u> CCV9	ICP/MS (Continuing calibration)	<u>As</u>	<u>99.551</u>	<u>100.0</u>	<u>99.6</u>	<u>99.6</u>	
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

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.

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**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:

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

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
<u>1541</u> <u>ICSAB</u>	ICP interference check	<u>Fe</u>	<u>203.5 (mg/L)</u>	<u>200.0 (mg/L)</u>	<u>102</u>	<u>102</u>	<u>Y</u>
<u>2243</u> <u>LCS</u>	Laboratory control sample	<u>Cr</u>	<u>42.175 (mg/L)</u>	<u>40.00 (mg/L)</u>	<u>105</u>	<u>105</u>	↓
<u>2256</u> <u>14</u>	Matrix spike	<u>Pb</u>	<u>(SSR-SR)</u> <u>107.43 (mg/L)</u>	<u>100.0 (mg/L)</u>	<u>107</u>	<u>107</u>	
<u>2045 / 2047</u> <u>16</u>	Duplicate	<u>Fe</u>	<u>0.5887 (mg/L)</u>	<u>0.6042 (mg/L)</u>	<u>2.60</u>	<u>2.60</u>	
<u>2045 / 2050</u> <u>7</u>	ICP serial dilution	<u>Na</u>	<u>34.55 (mg/L)</u>	<u>34.60 (mg/L)</u>	<u>0.1</u>	<u>0.1</u>	

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.





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 24, 2014  
**LDC Report Date:** June 11, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09204

### Sample Identification

SB-2-4/24/14	MW-22-2MSD
EB-4-4/24/14	MW-22-2DUP
MW-22-5**	MW-22-1MS
MW-22-4	MW-22-1MSD
MW-22-3	MW-22-1DUP
MW-22-2**	MW-24-2MS
MW-22-1	MW-24-2MSD
MW-24-5	MW-24-2DUP
MW-24-4	MW-24-1MS
MW-24-3	MW-24-1MSD
MW-24-2	MW-24-1DUP
DUP-2-2Q14	
MW-24-1	
SB-2-4/24/14MS	
SB-2-4/24/14MSD	
SB-2-4/24/14DUP	
MW-22-5MS	
MW-22-5MSD	
MW-22-5DUP	
MW-22-2MS	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 31 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 353.2 for Nitrite as Nitrogen, EPA SW 846 Method 7196 for Hexavalent Chromium, EPA Method 365.1 for Orthophosphate as Phosphorus, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Blanks

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

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Chloride	0.107 mg/L	SB-2-4/24/14 EB-4-4/24/14 MW-24-3
PB (prep blank)	Chloride	0.121 mg/L	MW-24-2 DUP-2-2Q14
PB (prep blank)	Chloride	0.221 mg/L	MW-22-5** MW-24-1
ICB/CCB	Chloride	0.274 mg/L	SB-2-4/24/14 EB-4-4/24/14 MW-22-4 MW-22-3 MW-22-2** MW-22-1 MW-24-5 MW-24-4 MW-24-3 MW-24-2 DUP-2-2Q14
PB (prep blank)	Orthophosphate as P	0.0058620 mg/L	MW-24-1
ICB/CCB	Orthophosphate as P	0.0065390 mg/L	MW-24-1

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Hexavalent chromium	0.000704 mg/L	SB-2-4/24/14 EB-4-4/24/14 MW-22-5** MW-22-4 MW-22-3 MW-22-2** MW-22-1 MW-24-5 MW-24-4 MW-24-3

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SB-2-4/24/14	Chloride Hexavalent chromium	0.16 mg/L 0.00070 mg/L	0.16U mg/L 0.00070U mg/L
MW-22-4	Hexavalent chromium	0.0021 mg/L	0.0021U mg/L
MW-22-3	Hexavalent chromium	0.0026 mg/L	0.0026U mg/L
MW-22-2**	Hexavalent chromium	0.0023 mg/L	0.0023U mg/L
MW-24-5	Hexavalent chromium	0.0030 mg/L	0.0030U mg/L
MW-24-3	Hexavalent chromium	0.00076 mg/L	0.00076U mg/L
MW-24-1	Orthophosphate as P	0.016 mg/L	0.016U mg/L

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-22-5MS/MSD (SB-2-4/24/14 EB-4-4/24/14 MW-22-5** MW-22-4 MW-22-3 MW-22-2**)	Hexavalent chromium	73.4 (85-115)	72.5 (85-115)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

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

## VIII. Sample Result Verification

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.

## IX. Overall Assessment of Data

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

## X. Field Duplicates

Samples MW-24-2 and DUP-2-2Q14 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-24-2	DUP-2-2Q14	
Total Alkalinity	170 mg/L	170 mg/L	0
Bicarbonate Alkalinity	200 mg/L	200 mg/L	0
Chloride	50 mg/L	50 mg/L	0
Hexavalent chromium	0.0027 mg/L	0.0029 mg/L	7
Nitrate as N	1.6 mg/L	1.8 mg/L	12

Analyte	Concentration		RPD
	MW-24-2	DUP-2-2Q14	
Perchlorate	8.5 ug/L	8.1 ug/L	5
pH	7.89 pH units	7.88 pH units	0
Sulfate	27 mg/L	27 mg/L	0
Total dissolved solids	330 mg/L	340 mg/L	3

## XI. Field Blanks

Sample SB-2-4/24/14 was identified as source blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration
SB-2-4/24/14	pH Chloride Hexavalent chromium	6.37 pH units 0.16 mg/L 0.00070 mg/L

Sample EB-4-4/24/14 was identified as an equipment blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-4-4/24/14	pH	6.06 pH units

**NASA JPL, 2Q2014**  
**Wet Chemistry - Data Qualification Summary - SDG 14-09204**

SDG	Sample	Analyte	Flag	A or P	Reason
14-09204	SB-2-4/24/14 EB-4-4/24/14 MW-22-5** MW-22-4 MW-22-3 MW-22-2**	Hexavalent chromium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)

**NASA JPL, 2Q2014**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-09204**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09260	SB-2-4/24/14	Chloride Hexavalent chromium	0.16U mg/L 0.00070U mg/L	A
14-09260	MW-22-4	Hexavalent chromium	0.0021U mg/L	A
14-09260	MW-22-3	Hexavalent chromium	0.0026U mg/L	A
14-09260	MW-22-2**	Hexavalent chromium	0.0023U mg/L	A
14-09260	MW-24-5	Hexavalent chromium	0.0030U mg/L	A
14-09260	MW-24-3	Hexavalent chromium	0.00076U mg/L	A
14-09260	MW-24-1	Orthophosphate as P	0.016U mg/L	A





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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

SB-2-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-02

File ID: Tiamo042514-134

Sampled: 04/24/14 06:30

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 21:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2236

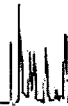
Sequence: 1405781

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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5/16/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

EB-4-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-03

File ID: Tiamo042514-135

Sampled: 04/24/14 06:40

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 21:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2236

Sequence: 1405781

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

5/31/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-22-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-04

File ID: Tiamo042514-136

Sampled: 04/24/14 07:20

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 21:27

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2236

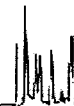
Sequence: 1405781

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	16	1		SM-2320B
---	Total Alkalinity as CaCO3	95	1		SM-2320B

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-22-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-05

File ID: Tiamo042514-137

Sampled: 04/24/14 08:00

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 21:33

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2236

Sequence:

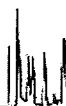
1405781

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

*K  
6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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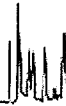
**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-22-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-06</u>	File ID: <u>Tiamo042514-138</u>	
Sampled: <u>04/24/14 08:40</u>	Prepared: <u>04/25/14 18:00</u>	Analyzed: <u>04/25/14 21:38</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2236</u>	Sequence: <u>1405781</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

*5/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-22-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-07

File ID: Tiamo042514-143

Sampled: 04/24/14 09:15

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

Sequence: 1405781

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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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-22-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-08</u>	File ID: <u>Tiamo042514-145</u>	
Sampled: <u>04/24/14 09:50</u>	Prepared: <u>04/25/14 18:00</u>	Analyzed: <u>04/25/14 22:12</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2237</u>	Sequence: <u>1405781</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-24-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-09

File ID: Tiamo042514-146

Sampled: 04/24/14 10:45

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:18

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

Sequence: 1405781

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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6/12/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-24-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-10

File ID: Tiamo042514-147

Sampled: 04/24/14 11:30

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:23

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	73	1		SM-2320B
3812-32-6	Carbonate	14	1		SM-2320B
---	Total Alkalinity as CaCO3	83	1		SM-2320B

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-24-3**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-11</u>	File ID: <u>Tiamo042514-148</u>	
Sampled: <u>04/24/14 12:05</u>	Prepared: <u>04/25/14 18:00</u>	Analyzed: <u>04/25/14 22:29</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2237</u>	Sequence: <u>1405781</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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	170	1		SM-2320B

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-24-2**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-12

File ID: Tiamo042514-149

Sampled: 04/24/14 12:40

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:35

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

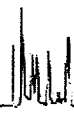
Sequence: 1405781

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	170	1		SM-2320B

*Handwritten signature/initials*  
6/17/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

DUP-2-2Q14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-13

File ID: Tiamo042514-150

Sampled: 04/24/14 13:00

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:41

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

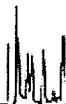
Sequence: 1405781

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	170	1		SM-2320B

*Handwritten signature/initials*  
6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14

File ID: Tiamo042514-151

Sampled: 04/24/14 13:45

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:46

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

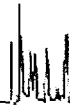
Sequence: 1405781

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

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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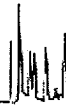
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

SB-2-4/24/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-02</u>	File ID: <u>A042414A.seq-06</u>	
Sampled: <u>04/24/14 06:30</u>	Prepared: <u>04/24/14 23:30</u>	Analyzed: <u>04/25/14 02:13</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2221</u>	Sequence: <u>1405820</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.16 <i>u</i>	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	0.18	1	U	EPA-300.0

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6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

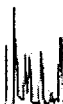
**EPA-300.0**

EB-4-4/24/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-03</u>	File ID: <u>A042414A.seq-07</u>	
Sampled: <u>04/24/14 06:40</u>	Prepared: <u>04/24/14 23:30</u>	Analyzed: <u>04/25/14 02:28</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2221</u>	Sequence: <u>1405820</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.067	1	U	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	0.18	1	U	EPA-300.0

*M*  
*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-22-5**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-04

File ID: A042414A.seq-08

Sampled: 04/24/14 07:20

Prepared: 04/24/14 23:30

Analyzed: 04/25/14 02:43

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2221

Sequence: 1405820

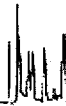
Calibration: UNASSIGNED

Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0

*Handwritten signature and date: 6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-22-5**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-04RE1

File ID: B050814.seq-58

Sampled: 04/24/14 07:20

Prepared: 05/08/14 20:00

Analyzed: 05/09/14 04:46

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0793

Sequence: 1406441

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	42	1		EPA-300.0

*Handwritten signature/initials*  
4/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

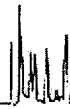
**EPA-300.0**

MW-22-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-05</u>	File ID: <u>A042414A.seq-09</u>	
Sampled: <u>04/24/14 08:00</u>	Prepared: <u>04/24/14 23:30</u>	Analyzed: <u>04/25/14 02:58</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2221</u>	Sequence: <u>1405820</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC1</u>

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	4.0	1		EPA-300.0
14808-79-8	Sulfate	11	1		EPA-300.0

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-22-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-06</u>	File ID: <u>A042414A.seq-10</u>	
Sampled: <u>04/24/14 08:40</u>	Prepared: <u>04/24/14 23:30</u>	Analyzed: <u>04/25/14 03:13</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2221</u>	Sequence: <u>1405820</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	31	1		EPA-300.0
14797-55-8	Nitrate as N	7.8	1		EPA-300.0
14808-79-8	Sulfate	34	1		EPA-300.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-22-2**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-07

File ID: A042414A.seq-11

Sampled: 04/24/14 09:15

Prepared: 04/24/14 23:30

Analyzed: 04/25/14 03:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2221

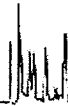
Sequence: 1405820

Calibration: UNASSIGNED

Instrument: IC1

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	7.8	1		EPA-300.0
14808-79-8	Sulfate	47	1		EPA-300.0

*Handwritten signature and date: 5/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-22-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-08

File ID: A042414A.seq-12

Sampled: 04/24/14 09:50

Prepared: 04/24/14 23:30

Analyzed: 04/25/14 03:43

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2221

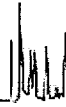
Sequence: 1405820

Calibration: UNASSIGNED

Instrument: IC1

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-24-5**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-09

File ID: A042414A.seq-18

Sampled: 04/24/14 10:45

Prepared: 04/24/14 23:30

Analyzed: 04/25/14 05:13

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2221

Sequence: 1405820

Calibration: UNASSIGNED

Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	8.6	1		EPA-300.0
14797-55-8	Nitrate as N	0.99	1		EPA-300.0
14808-79-8	Sulfate	19	1		EPA-300.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-24-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-10

File ID: A042414A.seq-19

Sampled: 04/24/14 11:30

Prepared: 04/24/14 23:30

Analyzed: 04/25/14 05:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2221

Sequence: 1405820

Calibration: UNASSIGNED

Instrument: IC1

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	0.12	1		EPA-300.0
14808-79-8	Sulfate	3.2	1		EPA-300.0

*Handwritten signature/initials*  
5/30/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-24-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-11</u>	File ID: <u>A042414A.seq-20</u>	
Sampled: <u>04/24/14 12:05</u>	Prepared: <u>04/24/14 23:30</u>	Analyzed: <u>04/25/14 05:43</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2221</u>	Sequence: <u>1405820</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	31	1		EPA-300.0
14797-55-8	Nitrate as N	0.037	1	J	EPA-300.0
14808-79-8	Sulfate	20	1		EPA-300.0

*Handwritten signature/initials*  
5/12/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

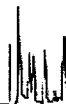
**EPA-300.0**

MW-24-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-12</u>	File ID: <u>A042414A.seq-21</u>	
Sampled: <u>04/24/14 12:40</u>	Prepared: <u>04/24/14 23:30</u>	Analyzed: <u>04/25/14 05:58</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2222</u>	Sequence: <u>1405820</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC1</u>

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	1.6	1		EPA-300.0
14808-79-8	Sulfate	27	1		EPA-300.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**DUP-2-2Q14**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-13

File ID: A042414A.seq-22

Sampled: 04/24/14 13:00

Prepared: 04/24/14 23:30

Analyzed: 04/25/14 06:13

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2222

Sequence: 1405820

Calibration: UNASSIGNED

Instrument: IC1

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	1.8	1		EPA-300.0
14808-79-8	Sulfate	27	1		EPA-300.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14

File ID: A042414A.seq-25

Sampled: 04/24/14 13:45

Prepared: 04/24/14 23:30

Analyzed: 04/25/14 06:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2222

Sequence: 1405820

Calibration: UNASSIGNED

Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-55-8	Nitrate as N	1.3	1		EPA-300.0

*Handwritten signature/initials*  
5/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14RE1

File ID: B050814.seq-59

Sampled: 04/24/14 13:45

Prepared: 05/08/14 20:00

Analyzed: 05/09/14 05:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0793

Sequence: 1406441

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	82	1		EPA-300.0
14808-79-8	Sulfate	44	1		EPA-300.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

SB-2-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-02

File ID: 140425 0832 NO2-041

Sampled: 04/24/14 06:30

Prepared: 04/25/14 08:32

Analyzed: 04/25/14 08:47

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2214

Sequence: 1405737

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**EB-4-4/24/14**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-03

File ID: 140425 0832 NO2-045

Sampled: 04/24/14 06:40

Prepared: 04/25/14 08:32

Analyzed: 04/25/14 08:47

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2214

Sequence: 1405737

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-22-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-04

File ID: 140425 0832 NO2-241

Sampled: 04/24/14 07:20

Prepared: 04/25/14 08:30

Analyzed: 04/25/14 14:25

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2217

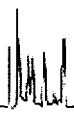
Sequence: 1405737

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

*6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-22-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-05

File ID: 140425 0832 NO2-047

Sampled: 04/24/14 08:00

Prepared: 04/25/14 08:32

Analyzed: 04/25/14 08:47

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2214

Sequence: 1405737

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

*Handwritten signature and date: 6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-22-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-06

File ID: 140425 0832 NO2-048

Sampled: 04/24/14 08:40

Prepared: 04/25/14 08:32

Analyzed: 04/25/14 08:47

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2214

Sequence: 1405737

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-22-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-07

File ID: 140425 0832 NO2-247

Sampled: 04/24/14 09:15

Prepared: 04/25/14 08:00

Analyzed: 04/25/14 14:25

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2347

Sequence: 1405737

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-22-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-08

File ID: 140425 0832 NO2-069

Sampled: 04/24/14 09:50

Prepared: 04/25/14 08:32

Analyzed: 04/25/14 09:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2214

Sequence: 1405737

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-24-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-09

File ID: 140425 0832 NO2-070

Sampled: 04/24/14 10:45

Prepared: 04/25/14 08:32

Analyzed: 04/25/14 09:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2214

Sequence: 1405737

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-24-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-10

File ID: 140425 0832 NO2-071

Sampled: 04/24/14 11:30

Prepared: 04/25/14 08:32

Analyzed: 04/25/14 09:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2214

Sequence: 1405737

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

*g  
6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-24-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-11

File ID: 140425 0832 NO2-072

Sampled: 04/24/14 12:05

Prepared: 04/25/14 08:32

Analyzed: 04/25/14 09:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2214

Sequence:

1405737

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

Handwritten signature/initials



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-24-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-12

File ID: 140425 0832 NO2-129

Sampled: 04/24/14 12:40

Prepared: 04/25/14 09:00

Analyzed: 04/25/14 10:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2215

Sequence: 1405737

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

DUP-2-2Q14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-13

File ID: 140425 0832 NO2-076

Sampled: 04/24/14 13:00

Prepared: 04/25/14 09:00

Analyzed: 04/25/14 09:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2215

Sequence:

1405737

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

*Handwritten signature/initials*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14

File ID: 140425 0832 NO2-036

Sampled: 04/24/14 13:45

Prepared: 04/25/14 08:32

Analyzed: 04/25/14 08:35

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2214

Sequence: 1405737

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

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

SB-2-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-02

File ID: 140424 1706 CR6-041

Sampled: 04/24/14 06:30

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2208

Sequence:

1405700

Calibration: UNASSIGNED

Instrument: KONE-1

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

EB-4-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-03

File ID: 140424 1706 CR6-042

Sampled: 04/24/14 06:40

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2208

Sequence: 1405700

Calibration: UNASSIGNED

Instrument: KONE-1

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-22-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-04

File ID: 140424 1706 CR6-037

Sampled: 04/24/14 07:20

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2208

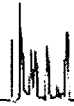
Sequence: 1405700

Calibration: UNASSIGNED

Instrument: KONE-1

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-22-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-05

File ID: 140424 1706 CR6-043

Sampled: 04/24/14 08:00

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2208

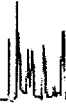
Sequence: 1405700

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0021 <i>UJ</i>	1		EPA-7196

*UJ*  
*6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-22-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-06

File ID: 140424 1706 CR6-044

Sampled: 04/24/14 08:40

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2208

Sequence: 1405700

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0026 <i>UJ</i>	1		EPA-7196

*6/11/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-22-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-07

File ID: 140424 1706 CR6-047

Sampled: 04/24/14 09:15

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2208

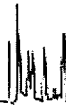
Sequence: 1405700

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0023 <i>US</i>	1		EPA-7196

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-22-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-08

File ID: 140424 1706 CR6-050

Sampled: 04/24/14 09:50

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2209

Sequence: 1405700

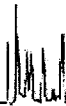
Calibration: UNASSIGNED

Instrument: KONE-1

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

Handwritten signature/initials and date: 6/12/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-24-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-09

File ID: 140424 1706 CR6-054

Sampled: 04/24/14 10:45

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2209

Sequence: 1405700

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0030 <i>u</i>	1		EPA-7196

*u*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-24-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-10

File ID: 140424 1706 CR6-055

Sampled: 04/24/14 11:30

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2209

Sequence: 1405700

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-24-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-11

File ID: 140424 1706 CR6-056

Sampled: 04/24/14 12:05

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 00:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2209

Sequence: 1405700

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00076 <i>u</i>	1	J	EPA-7196

*6/17/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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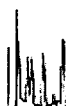
**INORGANIC ANALYSIS DATA SHEET**  
EPA-7196

MW-24-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-12</u>	File ID: <u>140424 1706 CR6-059</u>	
Sampled: <u>04/24/14 12:40</u>	Prepared: <u>04/24/14 17:06</u>	Analyzed: <u>04/25/14 01:02</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2209</u>	Sequence: <u>1405700</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0027	1		EPA-7196

*9/6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**DUP-2-2Q14**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-13

File ID: 140424 1706 CR6-060

Sampled: 04/24/14 13:00

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 01:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2209

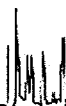
Sequence: 1405700

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0029	1		EPA-7196

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14

File ID: 140424 1706 CR6-061

Sampled: 04/24/14 13:45

Prepared: 04/24/14 17:06

Analyzed: 04/25/14 01:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2209

Sequence: 1405700

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0063	1		EPA-7196

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-365.1**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14

File ID: 140425 0806 PO4-121

Sampled: 04/24/14 13:45

Prepared: 04/25/14 08:06

Analyzed: 04/25/14 09:54

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2213

Sequence: 1405720

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.016 <i>u</i>	1	J	EPA-365.1



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

SB-2-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-02

File ID: F050614B.seq-17.0000.txt

Sampled: 04/24/14 06:30

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 06:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0680

Sequence: 1406330

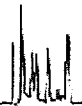
Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

6/12/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

EB-4-4/24/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-03</u>	File ID: <u>F050614B.seq-18.0000.txt</u>	
Sampled: <u>04/24/14 06:40</u>	Prepared: <u>05/06/14 22:00</u>	Analyzed: <u>05/07/14 06:15</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0680</u>	Sequence: <u>1406330</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten:* 6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-22-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-04

File ID: F050614B.seq-19.0000.txt

Sampled: 04/24/14 07:20

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 06:29

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0680

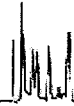
Sequence: 1406330

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-22-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-05

File ID: F050614B.seq-25.0000.txt

Sampled: 04/24/14 08:00

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 08:58

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0680

Sequence: 1406330

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-22-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-06

File ID: F050614B.seq-37.0000.txt

Sampled: 04/24/14 08:40

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 11:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0681

Sequence: 1406330

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

*Handwritten:* 5/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-22-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-07

File ID: F050614B.seq-38.0000.txt

Sampled: 04/24/14 09:15

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 11:58

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0682

Sequence: 1406330

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

*Handwritten signature/initials and date: 5/30/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-22-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-08

File ID: F050614B.seq-48.0000.txt

Sampled: 04/24/14 09:50

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 14:16

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0681

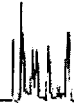
Sequence: 1406330

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

5/6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-24-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-09

File ID: F050614B.seq-39.0000.txt

Sampled: 04/24/14 10:45

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 12:12

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0681

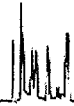
Sequence: 1406330

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

5/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-24-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-10

File ID: F050614B.seq-40.0000.txt

Sampled: 04/24/14 11:30

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 12:26

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0681

Sequence: 1406330

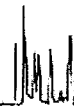
Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-24-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-11</u>	File ID: <u>F050614B.seq-41.0000.txt</u>	
Sampled: <u>04/24/14 12:05</u>	Prepared: <u>05/06/14 22:00</u>	Analyzed: <u>05/07/14 12:40</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0681</u>	Sequence: <u>1406330</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-24-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-12

File ID: F050614B.seq-42.0000.txt

Sampled: 04/24/14 12:40

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 12:53

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0681

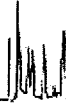
Sequence: 1406330

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	8.5	1		EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**DUP-2-2Q14**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-13

File ID: F050614B.seq-43.0000.txt

Sampled: 04/24/14 13:00

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 13:07

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0681

Sequence: 1406330

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	8.1	1		EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14RE1

File ID: F050614B.seq-55.0000.txt

Sampled: 04/24/14 13:45

Prepared: 05/06/14 22:00

Analyzed: 05/07/14 15:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0681

Sequence:

1406330

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	45	5	D	EPA-314.0

*Handwritten signature/initials and date: 5/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

SB-2-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-02

File ID: Tiamo042514-134

Sampled: 04/24/14 06:30

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 21:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2236

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	6.37	1		EPA-150.1

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

EB-4-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-03

File ID: Tiamo042514-135

Sampled: 04/24/14 06:40

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 21:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2236

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	6.06	1		EPA-150.1

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-22-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-04

File ID: Tiamo042514-136

Sampled: 04/24/14 07:20

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 21:27

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2236

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.00	1		EPA-150.1

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-22-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-05

File ID: Tiamo042514-137

Sampled: 04/24/14 08:00

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 21:33

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2236

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

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

*Handwritten signature/initials and date: 5/30/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-22-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-06

File ID: Tiamo042514-138

Sampled: 04/24/14 08:40

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 21:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2236

Sequence:

1405781

Calibration: UNASSIGNED

Instrument: MET-1

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

*Handwritten signature/initials and date: 5/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-22-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-07

File ID: Tiamo042514-143

Sampled: 04/24/14 09:15

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

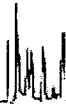
Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.03	1		EPA-150.1

*5/30/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-22-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-08

File ID: Tiamo042514-145

Sampled: 04/24/14 09:50

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:12

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

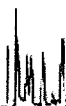
Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.58	1		EPA-150.1

*Handwritten signature/initials*  
5/30/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-24-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-09

File ID: Tiamo042514-146

Sampled: 04/24/14 10:45

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:18

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

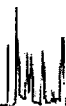
Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.19	1		EPA-150.1

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-24-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-10

File ID: Tiamo042514-147

Sampled: 04/24/14 11:30

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:23

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

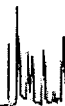
Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.18	1		EPA-150.1

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-24-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-11

File ID: Tiamo042514-148

Sampled: 04/24/14 12:05

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:29

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.26	1		EPA-150.1

*6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-24-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-12

File ID: Tiamo042514-149

Sampled: 04/24/14 12:40

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:35

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

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

*6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

DUP-2-2Q14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-13

File ID: Tiamo042514-150

Sampled: 04/24/14 13:00

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:41

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

Sequence: 1405781

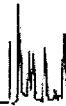
Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.88	1		EPA-150.1

*Handwritten signature/initials and date: 5/30/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14

File ID: Tiamo042514-151

Sampled: 04/24/14 13:45

Prepared: 04/25/14 18:00

Analyzed: 04/25/14 22:46

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2237

Sequence: 1405781

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.59	1		EPA-150.1

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

SB-2-4/24/14

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-02

File ID:

Sampled: 04/24/14 06:30

Prepared: 04/29/14 13:00

Analyzed: 04/29/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2486

Sequence: 1406001

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

*Handwritten signature and date: 6/12/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

EB-4-4/24/14
--------------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-03</u>
File ID:	
Sampled: <u>04/24/14 06:40</u>	Prepared: <u>04/29/14 13:00</u>
Analyzed: <u>04/29/14 13:00</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Initial/Final: <u>100 ml / 100 ml</u>	
Batch: <u>BXD2487</u>	Sequence: <u>1406001</u>
Calibration: <u>UNASSIGNED</u>	Instrument: <u>MANUAL</u>

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

*[Handwritten Signature]*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-22-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-04

File ID:

Sampled: 04/24/14 07:20

Prepared: 04/29/14 13:00

Analyzed: 04/29/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2487

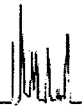
Sequence: 1406001

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-22-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-05

File ID:

Sampled: 04/24/14 08:00

Prepared: 04/29/14 13:00

Analyzed: 04/29/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2487

Sequence: 1406001

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	250	2	D	EPA-160.1

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-22-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-06

File ID:

Sampled: 04/24/14 08:40

Prepared: 04/29/14 13:00

Analyzed: 04/29/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2487

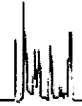
Sequence: 1406001

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
EPA-160.1

MW-22-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09204</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409204-07</u>
Sampled: <u>04/24/14 09:15</u>	Prepared: <u>04/29/14 13:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2487</u>	Sequence: <u>1406001</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>
	File ID:
	Analyzed: <u>04/29/14 13:00</u>
	Initial/Final: <u>100 ml / 100 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	410	2	D	EPA-160.1

*9*  
*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-22-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-08

File ID:

Sampled: 04/24/14 09:50

Prepared: 04/29/14 13:00

Analyzed: 04/29/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2487

Sequence: 1406001

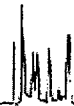
Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	760	5	D	EPA-160.1

6/12/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-24-5

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-09

File ID:

Sampled: 04/24/14 10:45

Prepared: 04/29/14 13:00

Analyzed: 04/29/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2487

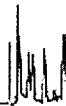
Sequence: 1406001

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 2:48:26PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-24-4

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-10

File ID:

Sampled: 04/24/14 11:30

Prepared: 04/29/14 13:00

Analyzed: 04/29/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2487

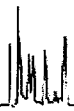
Sequence: 1406001

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	130	1		EPA-160.1

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-24-3

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-11

File ID:

Sampled: 04/24/14 12:05

Prepared: 04/29/14 13:00

Analyzed: 04/29/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2487

Sequence: 1406001

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	270	2	D	EPA-160.1

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-24-2

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-12

File ID:

Sampled: 04/24/14 12:40

Prepared: 04/29/14 13:00

Analyzed: 04/29/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2487

Sequence: 1406001

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**DUP-2-2Q14**

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-13

File ID:

Sampled: 04/24/14 13:00

Prepared: 04/29/14 13:40

Analyzed: 04/29/14 13:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2488

Sequence: 1406003

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

*Handwritten signature/initials*  
5/30/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 2:48:26PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-24-1

Laboratory: BC Laboratories

SDG: 14-09204

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409204-14

File ID:

Sampled: 04/24/14 13:45

Prepared: 04/29/14 13:40

Analyzed: 04/29/14 13:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2488

Sequence: 1406003

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	430	3.33	D	EPA-160.1

6/12/14

LDC #: 31915A6

**VALIDATION COMPLETENESS WORKSHEET**

Date: 6-9-14

SDG #: 14-09204

Level III/IV

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: *[Signature]*

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Nitrite-N (EPA Method 353.2), Hexavalent Chromium (EPA SW846 Method 7196), 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.	Technical holding times	A	Sampling dates: 4-24-14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	SW	
V	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	A	Not reviewed for Level III validation.
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 11 + 12
XI	Field blanks	SW	SB = 1 EB = 2

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

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

all water

1	SB-2-4/24/14	11	MW-24-2	21	MW-22-2MSD	31	MW-24-1DUP
2	EB-4-4/24/14	12	DUP-2-2Q14	22	MW-22-2DUP	32	
3	MW-22-5**	13	MW-24-1	23	MW-22-1MS	33	
4	MW-22-4	14	SB-2-4/24/14MS	24	MW-22-1MSD	34	
5	MW-22-3	15	SB-2-4/24/14MSD	25	MW-22-1DUP	35	
6	MW-22-2**	16	SB-2-4/24/14DUP	26	MW-24-2MS	36	
7	MW-22-1	17	MW-22-5MS	27	MW-24-2MSD	37	PBW1
8	MW-24-5	18	MW-22-5MSD	28	MW-24-2DUP	38	PBW2
9	MW-24-4	19	MW-22-5DUP	29	MW-24-1MS	39	PBW3
10	MW-24-3	20	MW-22-2MS	30	MW-24-1MSD	40	PBW4

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Method: Inorganics (EPA Method *See cover*)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
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)	✓			
<b>III. Blanks</b>				
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.	✓			
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
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) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2X \text{ CRDL}$ for soil) was used for samples that were $\leq 5X$ the CRDL, including when only one of the duplicate sample values were $\leq 5X$ the CRDL.	✓			
<b>V. Laboratory control samples</b>				
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% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	



Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			



**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

METHOD: Inorganics, Method See Cover

Conc. units: mg/L Associated Samples: 1,2,-10

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (mg/L)		1													
Cl	0.107		0.535	0.16													

Conc. units: mg/L Associated Samples: 11,12 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (mg/L)		No Qual's.													
Cl	0.121		0.605														

Conc. units: mg/L Associated Samples: 3,13 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (mg/L)		No Qual's.													
Cl	0.221		1.105														

Conc. units: mg/L Associated Samples: 1,2,4-12

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (mg/L)		1													
Cl		0.274	1.370	see PB													

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Inorganics, Method See Cover

**Conc. units:** mg/L **Associated Samples:** 13

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (mg/L)		13													
PO4-P	0.0058620	0.0065390	0.0327	0.016													

**Conc. units:** mg/L **Associated Samples:** 1-10

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (mg/L)		1	4	5	6	8	10								
Cr VI		0.000704	0.00352	0.00070	0.0021	0.0026	0.00023	0.0030	0.00076								

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



VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD	
	11	12		
Total Alkalinity	170	170	0	
Bicarbonate	200	200	0	
Chloride	50	50	0	
Hexavalent Chromium	0.0027	0.0029	7	
Nitrate as N	1.6	1.8	12	
Perchlorate (ug/L)	8.5	8.1	5	
pH (pH units)	7.89	7.88	0	
Sulfate	27	27	0	
TDS	330	340	3	



LDC #: 31915A6

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

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

**METHOD:** Inorganics, Method see cover

The correlation coefficient (r) for the calibration of Cr VI was recalculated. Calibration date: 1-4-14

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

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

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	Reported	Acceptable (Y/N)
					r or %R	r or %R	
Initial calibration	Cr VI	Blank	0.000 (mg/L)	0.001	$r^2 = 0.999907$	$r^2 = 0.999971$	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 (↓)	0.078			
		Standard 6	-	-			
		Standard 7	-	-			
Calibration verification	NO <sub>2</sub> -N	<sup>1418</sup> CCVA	0.496 (mg/L)	0.500 (mg/L)	99.2	99.2	
Calibration verification	SO <sub>4</sub>	<sup>0416</sup> CCV5	104.36 (mg/L)	100.0 (mg/L)	104	104	
Calibration verification	ClO <sub>4</sub>	<sup>1035</sup> CCV3	11.17 (μg/L)	10.0 (μg/L)	112	112	

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.



**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**METHOD:** Inorganics, Method see cover

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS	Laboratory control sample	Alk	101.6 (mg/L)	100.0 (mg/L)	102	102	Y
0443 23	Matrix spike sample	NO <sub>3</sub> -N	(SSR-SR) 5.026 (mg/L)	5.0505 (mg/L)	99.5	99.5	↓
25	Duplicate sample	TDS	755 (mg/L)	780 (mg/L)	3.26	3.26	

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.

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**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

**METHOD:** Inorganics, Method See cover

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

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments?
- 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:

$$TDS = \frac{(46.8467 \text{ g} - 46.8262 \text{ g})(1000 \text{ mg/g})}{0.050 \text{ L}} = 410.0 \text{ mg/L}$$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	3	pH	9.00 (pH unit)	9.00 (pH unit)	Y
	↓	Cl	7.2	7.2	↓
	↓	Carbonate	16	16	
2	6	TDS	410	410	↓
	↓	ClO4	2.9 (mg/L)	2.0 (mg/L)	
	↓	Cr VI	0.0023	0.0026	

Note: method 353.2 is N.D. for level IV samples.

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 25, 2014  
**LDC Report Date:** June 10, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09260

### Sample Identification

TB-5-4/25/14  
EB-5-4/25/14  
MW-20-5  
MW-20-4  
MW-20-3  
MW-20-2  
MW-20-1\*\*  
MW-18-5  
MW-18-4  
MW-18-3  
DUP-3-2Q14  
MW-18-2  
MW-20-4MS  
MW-20-4MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## **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%.

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

## **V. Blanks**

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

## **VI. Surrogate Spikes**

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

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

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

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

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

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

Not applicable.

### **X. Internal Standards**

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

### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria 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.

### **XII. Compound Quantitation**

All compound quantitations were within validation criteria 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. Tentatively Identified Compounds (TICs)**

All tentatively identified compounds were within validation criteria 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. System Performance**

The system performance was 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.

### **XV. Overall Assessment of Data**

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

### **XVI. Field Duplicates**

Samples MW-18-3 and DUP-3-2Q14 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-18-3	DUP-3-2Q14	
Carbon tetrachloride	6.4	7.2	12
Chloroform	1.3	1.3	0
Tetrachloroethene	0.15	0.16	6
Trichloroethene	0.51	0.57	11

## XVII. Field Blanks

Sample TB-5-4/25/14 was identified as a trip blank. No volatile contaminants were found.

Sample EB-5-4/25/14 was identified as an equipment blank. No volatile contaminants were found with the following exceptions:

Blank ID	Compound	Concentration (ug/L)
EB-5-4/25/14	Toluene	0.17

**NASA JPL, 2Q2014**

**Volatiles - Data Qualification Summary - SDG 14-09260**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-09260**

No Sample Data Qualified in this SDG







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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

TB-5-4/25/14

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-01 File ID: 28APR08.D  
Sampled: 04/25/14 06:00 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 11:49  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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

*6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

TB-5-4/25/14

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-01 File ID: 28APR08.D  
Sampled: 04/25/14 06:00 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 11:49  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	11.000	110	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.140	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9000	89.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	237754	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	78968	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	315525	7.52	321383	7.51	

Handwritten initials and date: K 6/2/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

TB-5-4/25/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-01</u>	File ID:	<u>28APR08.D</u>		
Sampled:	<u>04/25/14 06:00</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 11:49</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

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Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

EB-5-4/25/14

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-02 File ID: 28APR09.D  
Sampled: 04/25/14 06:15 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 12:12  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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

Handwritten signature and date: 6/2/14





Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

EB-5-4/25/14

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-02 File ID: 28APR09.D  
 Sampled: 04/25/14 06:15 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 12:12  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	10.950	110	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.050	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.8900	88.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	233910	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	78125	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	315679	7.51	321383	7.51	

*Handwritten signature and date: 6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

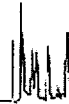
**EB-5-4/25/14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-02</u>	File ID:	<u>28APR09.D</u>		
Sampled:	<u>04/25/14 06:15</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 12:12</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 6/2/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:03:20PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-20-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-03</u>	File ID: <u>28APR10.D</u>	
Sampled: <u>04/25/14 06:45</u>	Prepared: <u>04/28/14 11:02</u>	Analyzed: <u>04/28/14 12:35</u>	
Solids:	Preparation: <u>EPA 5030 Water MS</u>	Initial/Final: <u>25 ml / 25 ml</u>	
Batch: <u>BXD2294</u>	Sequence: <u>1405694</u>	Calibration: <u>1404015</u>	Instrument: <u>MS-V5</u>

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

*6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-20-5

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-03 File ID: 28APR10.D  
 Sampled: 04/25/14 06:45 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 12:35  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	0.16	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

6/2/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-20-5

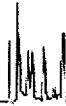
Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-03 File ID: 28APR10.D  
Sampled: 04/25/14 06:45 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 12:35  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	10.800	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.200	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0700	90.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	235610	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	77352	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	310193	7.51	321383	7.51	

6/2/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-20-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-03</u>
Sampled:	<u>04/25/14 06:45</u>	Prepared:	<u>04/28/14 11:02</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/2/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-20-4

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-04 File ID: 28APR11.D  
Sampled: 04/25/14 07:30 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 12:57  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-20-4

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-04 File ID: 28APR11.D  
Sampled: 04/25/14 07:30 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 12:57  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.54	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
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	10.750	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9900	99.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6000	96.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	231783	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	75559	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	305227	7.52	321383	7.51	

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-20-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-04</u>	File ID:	<u>28APR11.D</u>		
Sampled:	<u>04/25/14 07:30</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 12:57</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature/initials*  
6/12/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:03:20PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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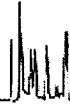
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-20-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-05</u>	File ID:	<u>28APR12.D</u>		
Sampled:	<u>04/25/14 08:10</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 13:20</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

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

*Handwritten signature*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-20-3

Laboratory: BC Laboratories      SDG: 14-09260  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409260-05      File ID: 28APR12.D  
Sampled: 04/25/14 08:10      Prepared: 04/28/14 11:02      Analyzed: 04/28/14 13:20  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2294      Sequence: 1405694      Calibration: 1404015      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	0.10	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	0.25	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	0.20	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	0.090	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

6/2/14



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
 EPA-524.2

MW-20-3

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-05 File ID: 28APR12.D  
 Sampled: 04/25/14 08:10 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 13:20  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.58	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
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	10.790	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9900	99.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1100	91.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	230971	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	76505	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	305422	7.52	321383	7.51	

*6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-20-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-05</u>	File ID:	<u>28APR12.D</u>		
Sampled:	<u>04/25/14 08:10</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 13:20</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

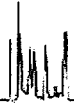
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-20-2

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-06 File ID: 28APR13.D  
 Sampled: 04/25/14 08:40 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 13:42  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

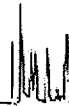
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-20-2

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-06 File ID: 28APR13.D  
Sampled: 04/25/14 08:40 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 13:42  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	0.21	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

6/10/14



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-20-2

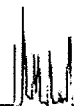
Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-06 File ID: 28APR13.D  
 Sampled: 04/25/14 08:40 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 13:42  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	11.030	110	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.110	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3300	93.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	225288	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	73891	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	297256	7.51	321383	7.51	

*Handwritten signature/initials*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:03:20PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-20-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-06</u>	File ID:	<u>28APR13.D</u>		
Sampled:	<u>04/25/14 08:40</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 13:42</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*M*  
*6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

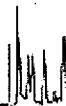
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-20-1

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-07 File ID: 28APR15.D  
Sampled: 04/25/14 09:10 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 14:54  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-20-1

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-07 File ID: 28APR15.D  
Sampled: 04/25/14 09:10 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 14:54  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-20-1

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-07 File ID: 28APR15.D  
Sampled: 04/25/14 09:10 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 14:54  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	10.290	103	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.100	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4400	94.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	239934	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	76154	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	307679	7.52	321383	7.51	

6/1/2014

Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

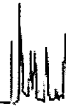
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-20-1

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-07</u>	File ID:	<u>28APR15.D</u>		
Sampled:	<u>04/25/14 09:10</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 14:54</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-18-5

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-08 File ID: 28APR16.D  
 Sampled: 04/25/14 10:20 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 15:17  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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

*6/2/14*







Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:03:20PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-18-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-08</u>	File ID:	<u>28APR16.D</u>		
Sampled:	<u>04/25/14 10:20</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 15:17</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/12/14*





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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

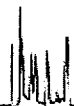
EPA-524.2

MW-18-4

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-09 File ID: 28APR17.D  
Sampled: 04/25/14 11:00 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 15:39  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	1.4	
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	0.11	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

*6/12/14*



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-18-4

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-09 File ID: 28APR17.D  
 Sampled: 04/25/14 11:00 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 15:39  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	0.64	
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	0.80	
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

6/12/14



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-18-4

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-09 File ID: 28APR17.D  
 Sampled: 04/25/14 11:00 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 15:39  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	11.180	112	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.260	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1300	91.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	232648	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	75693	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	302313	7.52	321383	7.51	

6/2/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:03:20PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-18-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-09</u>	File ID:	<u>28APR17.D</u>		
Sampled:	<u>04/25/14 11:00</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 15:39</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/12/14*



Tidewater Inc. Reported: 6/2/2014 1:03:20PM  
 3761 Attucks Drive Project: JPL- GW Monitoring Wells  
 Powell, OH 43065 Project Number: 2nd Qtr.  
Project Manager: David Conner

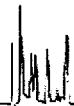
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-18-3

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-10 File ID: 28APR18.D  
 Sampled: 04/25/14 13:30 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 16:02  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	6.4	
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	1.3	
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

*6/12/14*



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-18-3

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-10 File ID: 28APR18.D  
 Sampled: 04/25/14 13:30 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 16:02  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	0.51	
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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 6/2/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-18-3

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-10 File ID: 28APR18.D  
 Sampled: 04/25/14 13:30 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 16:02  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	10.930	109	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.110	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9600	89.6	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	224457	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	75559	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	304521	7.51	321383	7.51	

*6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

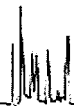
MW-18-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-10</u>	File ID:	<u>28APR18.D</u>		
Sampled:	<u>04/25/14 13:30</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 16:02</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:03:20PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

DUP-3-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-11</u>	File ID: <u>28APR19.D</u>	
Sampled: <u>04/25/14 13:45</u>	Prepared: <u>04/28/14 11:02</u>	Analyzed: <u>04/28/14 16:25</u>	
Solids:	Preparation: <u>EPA 5030 Water MS</u>	Initial/Final: <u>25 ml / 25 ml</u>	
Batch: <u>BXD2294</u>	Sequence: <u>1405694</u>	Calibration: <u>1404015</u>	Instrument: <u>MS-V5</u>

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	7.2	
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	1.3	
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

*8/6/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

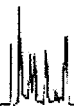
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

DUP-3-2Q14

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-11 File ID: 28APR19.D  
Sampled: 04/25/14 13:45 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 16:25  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	0.16	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	0.57	
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

6/2/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

DUP-3-2Q14

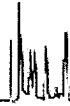
Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-11 File ID: 28APR19.D  
Sampled: 04/25/14 13:45 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 16:25  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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	10.850	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.040	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1800	91.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	232802	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	77388	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	306639	7.52	321383	7.51	

Handwritten signature/initials



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:03:20PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**DUP-3-2Q14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-11</u>	File ID:	<u>28APR19.D</u>		
Sampled:	<u>04/25/14 13:45</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 16:25</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

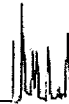
MW-18-2

Laboratory: BC Laboratories SDG: 14-09260  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409260-12 File ID: 28APR20.D  
Sampled: 04/25/14 14:30 Prepared: 04/28/14 11:02 Analyzed: 04/28/14 16:47  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405694 Calibration: 1404015 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

6/12/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-18-2

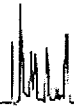
Laboratory: BC Laboratories      SDG: 14-09260  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409260-12      File ID: 28APR20.D  
Sampled: 04/25/14 14:30      Prepared: 04/28/14 11:02      Analyzed: 04/28/14 16:47  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2294      Sequence: 1405694      Calibration: 1404015      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	10.840	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.170	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2000	92.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	230100	6.73	238134	6.73	
Chlorobenzene-d5 (IS)	75124	9.73	83315	9.73	
1,4-Difluorobenzene (IS)	303514	7.52	321383	7.51	

Handwritten signature and date: 6/1/2014



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:03:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-18-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09260</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409260-12</u>	File ID:	<u>28APR20.D</u>		
Sampled:	<u>04/25/14 14:30</u>	Prepared:	<u>04/28/14 11:02</u>	Analyzed:	<u>04/28/14 16:47</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405694</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 6/2/14*



LDC #: 31915B1  
 SDG #: 14-09260  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III/IV

Date: 6/9/14  
 Page: 1 of 1  
 Reviewer: *BR*  
 2nd Reviewer: *[Signature]*

**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.	Technical holding times	A	Sampling dates: 4/25/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 20%, R
IV.	Continuing calibration/ICV	A	ICV/CCV ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A/R	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	FD = 10 + 11
XVII.	Field blanks	SW	TB = 1* EB = 2

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

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

*Water*

1	TB-5-4/25/14	11	DUP-3-2Q14	21	31	<i>BX02294-04K</i>
2	EB-5-4/25/14	12	MW-18-2	22	32	
3	MW-20-5	13	MW-20-4MS	23	33	
4	MW-20-4	14	MW-20-4MSD	24	34	
5	MW-20-3	15		25	35	
6	MW-20-2	16		26	36	
7	MW-20-1**	17		27	37	
8	MW-18-5	18		28	38	
9	MW-18-4	19		29	39	
10	MW-18-3	20		30	40	

**Method:** Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) $\leq$ 20%?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) $<$ 30%?	/			
<b>V. Blanks</b>				
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.		/		
<b>VI. Surrogate spikes</b>				
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?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
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?	/			
<b>VIII. Laboratory control samples</b>				
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?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
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?	/			
<b>XI. Target compound identification</b>				
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?	/			
<b>XII. Compound quantitation/RLs</b>				
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?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?	/		> 25	
Were relative intensities of the major ions within $\pm 20\%$ between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	/		> 25	
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target compounds were detected in the field duplicates.	/			
<b>XVII. Field blanks</b>				
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 chloride	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 #: 3191567

VALIDATION FINDINGS WORKSHEET  
Field Blanks

Page: 1 of 1  
Reviewer: BR  
2nd reviewer: ↑

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

Compound	Concentration Units (ug/L)
CC	0.17

Sample: \_\_\_\_\_ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ( )

Sample: \_\_\_\_\_ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ( )

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**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	
D	6.4	7.2	12
K	1.3	1.3	0
AA	0.15	0.16	6
S	0.51	0.57	11

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 31915B1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 2  
 Reviewer: BR  
 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,

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

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	4/8/2014	1,1-Dichloroethene (IS1)	0.804240	0.804240	0.7866686	0.7866686	13.1477	13.1477
	MS-V5		Trichloroethene (IS2)	0.330604	0.330604	0.3303824	0.3303824	9.748455	9.748462
			1,1,2,2-Tetrachloethane	0.544418	0.544418	0.5527675	0.5527675	2.742399	2.742366

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 #: 31915B1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 2 of 2  
 Reviewer: BR  
 2nd Reviewer: [Signature]

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<sub>x</sub> = Area of Compound

C<sub>x</sub> = Concentration of compound,

S = Standard deviation of the RRFs,

A<sub>is</sub> = Area of associated internal standard

C<sub>is</sub> = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 32/80 std)	Recalculated RRF (RRF 32/80 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	2/5/2014	Allyl chloride (IS1)	0.741567	0.741567	0.737045	0.737045	6.962034	6.962036
	MS-V5		Methyl methacrylate (IS2)	0.084568	0.084568	0.08916918	0.08916918	5.522741	5.522764
			Pentachloroethane (IS3)	0.638115	0.638115	0.5958182	0.5958182	14.21785	14.21786

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#: 31915B1

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: BR  
 2nd Reviewer: S

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:

Where:  
 $\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$   
 $\text{Ax} = \text{Area of compound,}$   
 $\text{ave. RRF} = \text{initial calibration average RRF}$   
 $\text{RRF} = \text{continuing calibration RRF}$   
 $\text{Cx} = \text{Concentration of compound,}$   
 $\text{Ais} = \text{Area of associated internal standard}$   
 $\text{Cis} = \text{Concentration of internal standard}$

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported % D	Recalculated %D
1	28APR03	4/28/2014	1,1-Dichloroethene (IS1)	0.786669	0.742889	0.742889	5.6	5.6
			Trichloroethene (IS2)	0.330382	0.3185150	0.3185150	3.6	3.6
			1,1,2,2-Tetrachloethane	0.552767	0.5559243	0.5559243	0.6	0.6
2	28APR04	4/28/2014	Allyl chloride (IS1)	0.737045	0.629768	0.629768	14.6	14.6
			Methyl methacrylate (IS2)	0.089169	0.07480094	0.07480094	16.1	16.1
			Pentachloroethane (IS3)	0.595818	0.7118766	0.7118766	19.5	19.5

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 #: 3 191581

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

Page: 1 of 1

Reviewer: BR

2nd reviewer: [Signature]

**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	10.00	10.10	101	101	0
Bromofluorobenzene	↓	9.44	94.4	94.4	0
1,2-Dichlorobenzene-d4	↓	10.29	103	103	0
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					

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

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

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

METHOD: GC/MS VOA (EPA Method 524.2)

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

$\% \text{Recovery} = 100 * (\text{SSC} - \text{SC}) / \text{SA}$

Where: SSC = Spiked sample concentration  
 SA = Spike added

SC = Sample concentration

$\text{RPD} = [\text{MSC} - \text{MSDC}] * 2 / (\text{MSC} + \text{MSDC}) * 100$

MSC = Matrix spike percent recovery

MSDC = Matrix spike duplicate percent recovery

MS/MSD samples: 13/14

Compound	Spike Added (µg/L)		Sample Conc. (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	Recalc.
1,1-Dichloroethene	25.00	25.00	0	26.830	26.380	107%	107%	106%	106%	1.69%	1.69%
Trichloroethene	25.00	25.00	0	27.330	26.790	109%	109%	107%	107%	2.00%	2.00%
Benzene	25.00	25.00	0	23.600	23.430	94.4%	94.4%	93.7%	93.7%	0.723%	0.723%
Toluene	25.00	25.00	0	26.280	26.480	105%	105%	106%	106%	0.758%	0.758%
Chlorobenzene	25.00	25.00	0	26.250	26.090	105%	105%	104%	104%	0.611%	0.611%

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

LDC #: 3195R1

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
Reviewer: BR  
2nd Reviewer: S

**METHOD:** GC/MS VOA (EPA Method 524.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory 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 = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS ID: BXD2294-BS1

Compound	Spike Added		Spiked Sample Concentration		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.00	-	25.820	-	103	103	2	2		
Trichloroethene			26.370		105	105				
Benzene			22.530		90.1	90.1				
Toluene			24.670		98.7	98.7				
Chlorobenzene			24.800		99.2	99.2				

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.



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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 25, 2014  
**LDC Report Date:** June 10, 2014  
**Matrix:** Water  
**Parameters:** Polynuclear Aromatic Hydrocarbons  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09260

**Sample Identification**

MW-18-4

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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

In the case where 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 method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

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

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

## **V. Blanks**

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

## **VI. Surrogate Spikes**

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



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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

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

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**

**Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 14-09260**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary  
- SDG 14-09260**

No Sample Data Qualified in this SDG



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/2/2014 1:05:36PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-8270C-SIM**

MW-18-4

Laboratory: BC Laboratories SDG: 14-09260  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409260-09 File ID: 05may014.D  
 Sampled: 04/25/14 11:00 Prepared: 04/30/14 22:00 Analyzed: 05/05/14 17:09  
 Solids: Preparation: EPA 3510B Initial/Final: 1000 ml / 0.97 ml  
 Batch: BXE0478 Sequence: 1406282 Calibration: 1405008 Instrument: MS-B7

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
83-32-9	Acenaphthene	0.97	0.034	U
208-96-8	Acenaphthylene	0.97	0.034	U
120-12-7	Anthracene	0.97	0.034	U
56-55-3	Benzo[a]anthracene	0.97	0.034	U
205-99-2	Benzo[b]fluoranthene	0.97	0.034	U
207-08-9	Benzo[k]fluoranthene	0.97	0.034	U
50-32-8	Benzo[a]pyrene	0.97	0.034	U
191-24-2	Benzo[g,h,i]perylene	0.97	0.034	U
218-01-9	Chrysene	0.97	0.034	U
53-70-3	Dibenzo[a,h]anthracene	0.97	0.034	U
206-44-0	Fluoranthene	0.97	0.034	U
86-73-7	Fluorene	0.97	0.034	U
193-39-5	Indeno[1,2,3-cd]pyrene	0.97	0.034	U
91-20-3	Naphthalene	0.97	0.034	U
85-01-8	Phenanthrene	0.97	0.034	U
129-00-0	Pyrene	0.97	0.034	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Nitrobenzene-d5 (Surrogate)	4.0000	3.9673	99.2	42 - 130	
2-Fluorobiphenyl (Surrogate)	4.0000	3.6957	92.4	50 - 116	
p-Terphenyl-d14 (Surrogate)	4.0000	4.2389	106	43 - 134	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Acenaphthene-d10 (IS)	337034	5.937	346574	5.934	
Phenanthrene-d10 (IS)	475568	7.376	503614	7.373	
Chrysene-d12 (IS)	317423	10.917	370727	10.911	
Perylene-d12 (IS)	195163	12.834	254798	12.833	
Naphthalene-d8 (IS)	651611	4.535	669547	4.528	
1,4-Dichlorobenzene-d4 (IS)	195655	3.595	204199	3.586	

\* Values outside of QC limits

*Handwritten signature/initials*  
 6/12/14

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270C-SIM)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/25/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 30/152, r <sup>2</sup>
IV.	Continuing calibration/ICV	A	ICV/CCV ≤ 20%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	Client spec.
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: *Water*

1	MW-18-4	11		21		31	BX E0478-B4
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 25, 2014  
**LDC Report Date:** June 11, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09260

### Sample Identification

EB-5-4/25/14  
MW-20-5  
MW-20-4  
MW-20-3  
MW-20-2  
MW-20-1\*\*  
MW-18-5  
MW-18-4  
MW-18-3  
DUP-3-2Q14  
MW-18-2  
MW-20-4MS  
MW-20-4MSD  
MW-20-4DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 200.7 and 200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron	35.402 ug/L	MW-18-4 MW-18-3 DUP-3-2Q14 MW-18-2
PB (prep blank)	Iron	20.003 ug/L	EB-5-4/25/14 MW-20-5 MW-20-4 MW-20-3 MW-20-2 MW-20-1** MW-18-5
ICB/CCB	Iron	38.000 ug/L	MW-18-4
ICB/CCB	Iron	34.311 ug/L	EB-5-4/25/14 MW-20-5 MW-20-4 MW-20-3 MW-20-2 MW-20-1** MW-18-5
ICB/CCB	Lead	0.13400 ug/L	MW-18-2

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium	0.58000 ug/L	EB-5-4/25/14 MW-20-5 MW-20-4 MW-20-3 MW-20-2 MW-20-1** MW-18-5 MW-18-4 MW-18-3 DUP-3-2Q14
ICB/CCB	Chromium	0.61700 ug/L	EB-5-4/25/14 MW-20-5 MW-20-4 MW-20-3 MW-20-2 MW-20-1** MW-18-5 MW-18-4 MW-18-3 DUP-3-2Q14
PB (prep blank)	Magnesium	0.036920 mg/L	MW-18-4 MW-18-3 DUP-3-2Q14 MW-18-2
PB (prep blank)	Magnesium Sodium	0.038594 mg/L 0.026463 mg/L	EB-5-4/25/14 MW-20-5 MW-20-4 MW-20-3 MW-18-5
PB (prep blank)	Potassium Sodium	0.32070 mg/L 0.10017 mg/L	MW-20-2 MW-20-1**
ICB/CCB	Potassium Sodium	0.15909 mg/L 0.060757 mg/L	MW-20-2 MW-20-1**
ICB/CCB	Magnesium	0.044259 mg/L	MW-18-4
ICB/CCB	Magnesium	0.030888 mg/L	MW-18-3 DUP-3-2Q14 MW-18-2
ICB/CCB	Magnesium Sodium	0.041531 mg/L 0.040810 mg/L	MW-20-4
ICB/CCB	Magnesium Sodium	0.041531 mg/L 0.062422 mg/L	EB-5-4/25/14 MW-20-5 MW-20-3 MW-18-5



Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-5-4/25/14	Iron Chromium Sodium	13 ug/L 1.0 ug/L 0.033 mg/L	13U ug/L 1.0U ug/L 0.033U mg/L
MW-20-5	Chromium	0.72 ug/L	0.72U ug/L
MW-20-4	Iron Chromium	21 ug/L 0.54 ug/L	21U ug/L 0.54U ug/L
MW-20-3	Iron Chromium	25 ug/L 0.90 ug/L	25U ug/L 0.90U ug/L
MW-20-2	Iron Chromium	11 ug/L 2.2 ug/L	11U ug/L 2.2U ug/L
MW-20-1**	Iron Chromium	42 ug/L 0.82 ug/L	42U ug/L 0.82U ug/L
MW-18-5	Iron Chromium	53 ug/L 0.67 ug/L	53U ug/L 0.67U ug/L
MW-18-3	Iron Chromium	100 ug/L 2.6 ug/L	100U ug/L 2.6U ug/L
DUP-3-2Q14	Iron Chromium	100 ug/L 2.7 ug/L	100U ug/L 2.7U ug/L

#### V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For MW-20-4MS/MSD, no data were qualified for Sodium percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

## VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VIII. Laboratory Control Samples (LCS)

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

## IX. Internal Standards

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.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. 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.

## XII. Overall Assessment of Data

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

## XIII. Field Duplicates

Samples MW-18-3 and DUP-3-2Q14 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-18-3	DUP-3-2Q14	
Arsenic	0.97	0.70U	200
Calcium	59000	57000	3
Chromium	2.6	2.7	4
Iron	100	100	0
Magnesium	18000	17000	6

Analyte	Concentration (ug/L)		RPD
	MW-18-3	DUP-3-2Q14	
Potassium	2900	2900	0
Sodium	21000	21000	0

#### XIV. Field Blanks

Sample EB-5-4/25/14 was identified as an equipment blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-5-4/25/14	Iron Chromium Calcium Sodium	13 ug/L 1.0 ug/L 0.020 mg/L 0.033 mg/L

**NASA JPL, 2Q2014**  
**Metals - Data Qualification Summary - SDG 14-09260**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 14-09260**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09260	EB-5-4/25/14	Iron Chromium Sodium	13U ug/L 1.0U ug/L 0.033U mg/L	A
14-09260	MW-20-5	Chromium	0.72U ug/L	A
14-09260	MW-20-4	Iron Chromium	21U ug/L 0.54U ug/L	A
14-09260	MW-20-3	Iron Chromium	25U ug/L 0.90U ug/L	A
14-09260	MW-20-2	Iron Chromium	11U ug/L 2.2U ug/L	A
14-09260	MW-20-1**	Iron Chromium	42U ug/L 0.82U ug/L	A
14-09260	MW-18-5	Iron Chromium	53U ug/L 0.67U ug/L	A
14-09260	MW-18-3	Iron Chromium	100U ug/L 2.6U ug/L	A
14-09260	DUP-3-2Q14	Iron Chromium	100U ug/L 2.7U ug/L	A



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-5-4/25/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-02</u>	File ID: <u>PE2 140501-069</u>	
Sampled: <u>04/25/14 06:15</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 17:53</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2426</u>	Sequence: <u>1406085</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	13 <i>u</i>	1	J	EPA-200.7

*u*  
6/12/14



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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-20-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-03

File ID: PE2\_140501-070

Sampled: 04/25/14 06:45

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 17:55

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

Sequence: 1406085

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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Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-20-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-04

File ID: PE2 140501-057

Sampled: 04/25/14 07:30

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 17:24

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

Sequence: 1406085

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	21 <i>u</i>	1	J	EPA-200.7

*6/12/14*



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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-20-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-05

File ID: PE2\_140501-071

Sampled: 04/25/14 08:10

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 17:58

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

Sequence: 1406085

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	25 <i>u</i>	1	J	EPA-200.7

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*6/12/14*



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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-20-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-06</u>	File ID: <u>PE2 140501-072</u>	
Sampled: <u>04/25/14 08:40</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 18:00</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2426</u>	Sequence: <u>1406085</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	11 <i>u</i>	1	J	EPA-200.7

*6/12/14*



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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07

File ID: PE2 140501-073

Sampled: 04/25/14 09:10

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 18:03

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

Sequence: 1406085

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	42 <i>u</i>	1	J	EPA-200.7

*6/12/14*



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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-18-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-08

File ID: PE2\_140501-074

Sampled: 04/25/14 10:20

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 18:05

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

Sequence: 1406085

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	53 <i>h</i>	1		EPA-200.7

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*6/12/14*



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Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-18-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-09

File ID: PE2\_140430R-096

Sampled: 04/25/14 11:00

Prepared: 04/30/14 08:00

Analyzed: 04/30/14 19:23

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

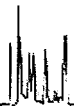
Sequence: 1405934

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	290	1	B	EPA-200.7

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Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-18-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10

File ID: PE2\_140430R-100

Sampled: 04/25/14 13:30

Prepared: 04/30/14 08:00

Analyzed: 04/30/14 19:34

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

Sequence: 1405934

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	100 <i>u</i>	1	B	EPA-200.7

*6/12/14*



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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

DUP-3-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-11</u>	File ID: <u>PE2_140430R-101</u>	
Sampled: <u>04/25/14 13:45</u>	Prepared: <u>04/30/14 08:00</u>	Analyzed: <u>04/30/14 19:37</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2588</u>	Sequence: <u>1405934</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	100 <i>u</i>	1	B	EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-18-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-12</u>	File ID: <u>PE2 140430R-102</u>	
Sampled: <u>04/25/14 14:30</u>	Prepared: <u>04/30/14 08:00</u>	Analyzed: <u>04/30/14 19:40</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2588</u>	Sequence: <u>1405934</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	180	1	B	EPA-200.7

*6/12/14*



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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

EB-5-4/25/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-02</u>	File ID: <u>PE_EL2_140502-295</u>	
Sampled: <u>04/25/14 06:15</u>	Prepared: <u>04/30/14 08:30</u>	Analyzed: <u>05/03/14 01:17</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2592</u>	Sequence: <u>1406140</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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	1.0 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-20-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-03</u>	File ID: <u>PE_EL2_140502-296</u>	
Sampled: <u>04/25/14 06:45</u>	Prepared: <u>04/30/14 08:30</u>	Analyzed: <u>05/03/14 01:20</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2592</u>	Sequence: <u>1406140</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



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Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-20-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-04

File ID: PE\_EL2\_140502-287

Sampled: 04/25/14 07:30

Prepared: 04/30/14 08:30

Analyzed: 05/03/14 00:51

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2592

Sequence: 1406140

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	0.54 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-20-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-05

File ID: PE\_EL2\_140502-297

Sampled: 04/25/14 08:10

Prepared: 04/30/14 08:30

Analyzed: 05/03/14 01:23

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2592

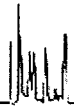
Sequence: 1406140

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	0.90 <i>U</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-20-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-06

File ID: PE EL2 140502-298

Sampled: 04/25/14 08:40

Prepared: 04/30/14 08:30

Analyzed: 05/03/14 01:26

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2592

Sequence: 1406140

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	2.2 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07

File ID: PE\_EL2\_140502-299

Sampled: 04/25/14 09:10

Prepared: 04/30/14 08:30

Analyzed: 05/03/14 01:30

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2592

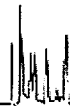
Sequence: 1406140

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 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**MW-18-5**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-08</u>	File ID: <u>PE_EL2 140502-300</u>	
Sampled: <u>04/25/14 10:20</u>	Prepared: <u>04/30/14 08:30</u>	Analyzed: <u>05/03/14 01:33</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2592</u>	Sequence: <u>1406140</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.99	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.67 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**MW-18-4**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-09</u>	File ID: <u>PE_EL2_140502-301</u>	
Sampled: <u>04/25/14 11:00</u>	Prepared: <u>04/30/14 08:30</u>	Analyzed: <u>05/03/14 01:36</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2592</u>	Sequence: <u>1406140</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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	3.4	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-18-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-10</u>	File ID: <u>PE_EL2_140502-302</u>	
Sampled: <u>04/25/14 13:30</u>	Prepared: <u>04/30/14 08:30</u>	Analyzed: <u>05/03/14 01:39</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2592</u>	Sequence: <u>1406140</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

DUP-3-2Q14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11

File ID: PE\_EL2\_140502-303

Sampled: 04/25/14 13:45

Prepared: 04/30/14 08:30

Analyzed: 05/03/14 01:43

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2592

Sequence: 1406140

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	2.7 <i>u</i>	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12

File ID: PE EL2 140430-173

Sampled: 04/25/14 14:30

Prepared: 04/30/14 08:30

Analyzed: 04/30/14 21:03

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2594

Sequence: 1405913

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**EB-5-4/25/14**

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-02

File ID: PE2\_140501-069

Sampled: 04/25/14 06:15

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 17:53

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

Sequence: 1406085

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.020	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.033 <i>u</i>	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-20-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-03

File ID: PE2 140501-070

Sampled: 04/25/14 06:45

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 17:55

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

Sequence: 1406085

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	6.6	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	2.1	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	58	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.5	1		EPA-200.7

6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-20-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-04</u>	File ID: <u>PE2 140501-057</u>	
Sampled: <u>04/25/14 07:30</u>	Prepared: <u>04/29/14 08:30</u>	Analyzed: <u>05/01/14 17:24</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2426</u>	Sequence: <u>1406085</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	8.4	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	3.1	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	60	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	0.78	1	J	EPA-200.7

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-20-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-05

File ID: PE2 140501-071

Sampled: 04/25/14 08:10

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 17:58

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

Sequence: 1406085

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	9.3	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	8.7	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	52	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.0	1		EPA-200.7

*6/2/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-20-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-06RE1</u>	File ID: <u>PE2_140512R1-066</u>	
Sampled: <u>04/25/14 08:40</u>	Prepared: <u>05/09/14 08:30</u>	Analyzed: <u>05/12/14 19:10</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0839</u>	Sequence: <u>1406636</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

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	27	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	19	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

*Handwritten signature/initials*  
6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:18:35PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07RE1

File ID: PE2 140512R1-067

Sampled: 04/25/14 09:10

Prepared: 05/09/14 08:30

Analyzed: 05/12/14 19:12

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0839

Sequence: 1406636

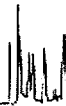
Calibration: UNASSIGNED

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	21	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	18	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

*6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-18-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-08

File ID: PE2\_140501-074

Sampled: 04/25/14 10:20

Prepared: 04/29/14 08:30

Analyzed: 05/01/14 18:05

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2426

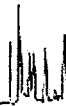
Sequence: 1406085

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	4.7	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	53	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.3	1		EPA-200.7

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-18-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-09

File ID: PE2\_140430R-096

Sampled: 04/25/14 11:00

Prepared: 04/30/14 08:00

Analyzed: 04/30/14 19:23

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

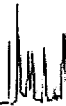
Sequence: 1405934

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	38	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	11	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	30	1		EPA-200.7

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-18-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-09RE1

File ID: PE2\_140501-043

Sampled: 04/25/14 11:00

Prepared: 04/30/14 08:00

Analyzed: 05/01/14 16:49

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

Sequence: 1406118

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-09-7	Total Recoverable Potassium	1.9	1		EPA-200.7

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-18-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10

File ID: PE2\_140430R-100

Sampled: 04/25/14 13:30

Prepared: 04/30/14 08:00

Analyzed: 04/30/14 19:34

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

Sequence: 1405934

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	18	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	21	1		EPA-200.7

*6/18/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-18-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10RE1

File ID: PE2 140501-047

Sampled: 04/25/14 13:30

Prepared: 04/30/14 08:00

Analyzed: 05/01/14 16:59

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

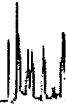
Sequence: 1406118

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

*Handwritten signature and date: 6/18/14*



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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**DUP-3-2Q14**

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11

File ID: PE2\_140430R-101

Sampled: 04/25/14 13:45

Prepared: 04/30/14 08:00

Analyzed: 04/30/14 19:37

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

Sequence: 1405934

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	57	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	17	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	21	1		EPA-200.7

*Handwritten signature and date: 6/18/14*



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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**DUP-3-2Q14**

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11RE1

File ID: PE2\_140501-048

Sampled: 04/25/14 13:45

Prepared: 04/30/14 08:00

Analyzed: 05/01/14 17:01

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

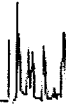
Sequence: 1406118

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12

File ID: PE2\_140430R-102

Sampled: 04/25/14 14:30

Prepared: 04/30/14 08:00

Analyzed: 04/30/14 19:40

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

Sequence: 1405934

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	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	19	1		EPA-200.7

*Handwritten signature and date: 6/2/14*





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Reported: 6/2/2014 1:18:35PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12RE1

File ID: PE2 140501-049

Sampled: 04/25/14 14:30

Prepared: 04/30/14 08:00

Analyzed: 05/01/14 17:04

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXD2588

Sequence:

1406118

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

*6/12/14*

LDC #: 31915B4

**VALIDATION COMPLETENESS WORKSHEET**

Date: 6-10-14

SDG #: 14-09260

Level III/IV

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: *[Signature]***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.	Technical holding times	A	Sampling dates: 4-25-14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	A	MS/MSD Na - 4x
VII.	Duplicate Sample Analysis	A	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	A	not reviewed for level III
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	D = 9 + 10
XIV.	Field Blanks	SW	EB = 1

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

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

1	EB-5-4/25/14	11	MW-18-2	21		31	
2	MW-20-5	12	MW-20-4MS	22		32	
3	MW-20-4	13	MW-20-4MSD	23		33	
4	MW-20-3	14	MW-20-4DUP	24		34	
5	MW-20-2	15		25		35	
6	MW-20-1**	16		26		36	
7	MW-18-5	17		27		37	
8	MW-18-4	18		28		38	PBW1
9	MW-18-3	19		29		39	PBW2
10	DUP-3-2Q14	20		30		40	PBW3

Notes: \_\_\_\_\_

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

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution $\leq 5\%$ ?	✓			
<b>III. Calibration</b>				
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 $> 0.995$ ?	✓			
<b>IV. Blanks</b>				
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.	✓			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
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) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\pm RL$ ( $\pm 2X RL$ for soil) was used for samples that were $\leq 5X$ the RL, including when only one of the duplicate sample values were $< 5X$ the RL.	✓			
<b>VII. Laboratory control samples</b>				
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?	✓			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
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?			✓	
<b>IX. ICP Serial Dilution</b>				
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.		✓		
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			



Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	9	10								
Fe		35.402		177.0	100	100								

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 1-7

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1	3	4	5	6	7				
Fe		20.003		100.0	13	21	25	11	42	53				

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 8 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual.									
Fe			38.000	190.0										

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 1-7

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1	3	4	5	6	7				
Fe			34.311	171.6	see PB	see PB	see PB	see PB	see PB	see PB				

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 11 (ND)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual.									
Pb			0.13400	0.670										

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1	2	3	4	5	6	7	9	10
Cr		0.58000	0.61700	3.085	1.0	0.72	0.54	0.90	2.2	0.82	0.67	2.6	2.7

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 8-11 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.								
Mg		0.036920		0.185									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1-4,7

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1								
Mg		0.038594		0.193									
Na		0.026463		0.132	0.033								

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 5,6 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.								
K		0.32070	0.15909	1.604									
Na		0.10017	0.060757	0.501									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 8 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual.								
Mg			0.044259	0.221									

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Mg			0.030888	0.154										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 3 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Mg			0.041531	0.208										
Na			0.040810	0.204										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1,2,4,7

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1									
Mg			0.041531	0.208										
Na			0.062422	0.312	see PB									

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.



VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (ug/L)		RPD	
	9	10		
Arsenic	0.97	0.70U	200	
Calcium	59000	57000	3	
Chromium	2.6	2.7	4	
Iron	100	100	0	
Magnesium	18000	17000	6	
Potassium	2900	2900	0	
Sodium	21000	21000	0	

LDC #: 31915B4

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

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

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

N N/A Were field blanks identified in this SDG?  
 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	13 (mg/L)
Cr	1.0 (↓)
Ca	0.020 (mg/L)
Na	0.033 (↓)

Sample: \_\_\_\_\_ Field Blank / Trip Blank / Rinsate / Other \_\_\_\_\_ (circle one)

Analyte	Concentration Units ( )

LDC #: 31915B4

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

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

**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:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       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	Reported	Acceptable (Y/N)
					%R	%R	
<u>1616</u> <u>ICV</u>	ICP (Initial calibration)	<u>K</u>	<u>50370</u>	<u>50000</u>	<u>101</u>	<u>101</u>	<u>Y</u>
<u>0848</u> <u>ICV</u>	ICP/MS (Initial calibration)	<u>As</u>	<u>123.879</u>	<u>125.00</u>	<u>99.1</u>	<u>99.1</u>	↓
	CVAA (Initial calibration)						
<u>1900</u> <u>CCV2</u>	ICP (Continuing calibration)	<u>Ca</u>	<u>51670</u>	<u>50000</u>	<u>103</u>	<u>103</u>	
<u>0110</u> <u>CCVS</u>	ICP/MS (Continuing calibration)	<u>Pb</u>	<u>102.528</u>	<u>100.00</u>	<u>103</u>	<u>103</u>	
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

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.

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**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:

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

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
<u>1650</u> <u>ICSAB</u>	ICP interference check	<u>Mg</u>	<u>505.2 (mg/L)</u>	<u>500.0 (mg/L)</u>	<u>101</u>	<u>101</u>	<u>Y</u>
<u>0044</u> <u>LCS</u>	Laboratory control sample	<u>As</u>	<u>101.23 (mg/L)</u>	<u>100.0 (mg/L)</u>	<u>101</u>	<u>101</u>	↓
<u>0101</u> <u>12</u>	Matrix spike	<u>Pb</u>	<u>(SSR-SR)</u> <u>102.45 (mg/L)</u>	<u>100.0 (mg/L)</u>	<u>102</u>	<u>102</u>	
<u>0051 / 0054</u> <u>14</u>	Duplicate	<u>Cr</u>	<u>0.537 (mg/L)</u>	<u>0.621 (mg/L)</u>	<u>14.5</u>	<u>14.5</u>	
<u>1724 / 1728</u> <u>3</u>	ICP serial dilution	<u>Fe</u>	<u>21.2 (mg/L)</u>	<u>34.5 (mg/L)</u>	<u>62.7</u>	<u>62.9</u>	↓

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.



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 25, 2014  
**LDC Report Date:** June 12, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09260

### Sample Identification

EB-5-4/25/14  
MW-20-5  
MW-20-4  
MW-20-3  
MW-20-2  
MW-20-1\*\*  
MW-18-5  
MW-18-4  
MW-18-3  
DUP-3-2Q14  
MW-18-2  
MW-20-4MS  
MW-20-4MSD  
MW-20-4DUP  
MW-20-3DUP  
MW-20-1MS  
MW-20-1MSD  
MW-20-1DUP  
DUP-3-2Q14MS  
DUP-3-2Q14MSD  
DUP-3-2Q14DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 21 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 353.2 for Nitrite as Nitrogen, EPA SW 846 Method 7196 for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB-5-4/25/14	pH	85.50 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-20-5	pH	85.00 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-20-4	pH	84.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-20-3 MW-20-3DUP	pH	84.00 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-20-2	pH	83.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-20-1**	pH	83.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-18-5	pH	82.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-18-4	pH	81.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-18-3	pH	79.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
DUP-3-2Q14	pH	79.00 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-18-2	pH	78.50 hours	48 hours	J (all detects) UJ (all non-detects)	P

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

## II. 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. Blanks

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

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Chloride Sulfate	0.26200 mg/L 0.30700 mg/L	MW-18-2
PB (prep blank)	Chloride Sulfate	0.23500 mg/L 0.30300 mg/L	EB-5-4/25/14 MW-20-5 MW-20-4 MW-20-3 MW-20-2 MW-20-1** MW-18-5 MW-18-4 MW-18-3 DUP-3-2Q14
ICB/CCB	Chloride Sulfate	0.22000 mg/L 0.36200 mg/L	All samples in SDG 14-09260
PB (prep blank)	Perchlorate	0.74060 ug/L	EB-5-4/25/14 MW-20-5 MW-20-4 MW-20-3

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-5-4/25/14	Chloride Sulfate	0.32 mg/L 0.31 mg/L	0.32U mg/L 0.31U mg/L

### V. Matrix Spike/Matrix Spike Duplicates

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

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

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

## VIII. Sample Result Verification

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.

## IX. Overall Assessment of Data

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

## X. Field Duplicates

Samples MW-18-3 and DUP-3-2Q14 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-18-3	DUP-3-2Q14	
Total alkalinity	200 mg/L	200 mg/L	0
Bicarbonate	240 mg/L	240 mg/L	0
Chloride	20 mg/L	20 mg/L	0
Hexavalent chromium	0.0022 mg/L	0.0022 mg/L	0
Nitrate as N	1.8 mg/L	1.8 mg/L	0
Perchlorate	32 ug/L	36 ug/L	12
pH	8.00 pH units	8.00 pH units	0
Sulfate	39 mg/L	39 mg/L	0
Total dissolved solids	330 mg/L	380 mg/L	14

## XI. Field Blanks

Sample EB-5-4/25/14 was identified as an equipment blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-5-4/25/14	pH Chloride Sulfate Bicarbonate Total alkalinity	6.57 pH units 0.32 mg/L 0.31 mg/L 6.5 mg/L 5.3 mg/L

**NASA JPL, 2Q2014**  
**Wet Chemistry - Data Qualification Summary - SDG 14-09260**

SDG	Sample	Analyte	Flag	A or P	Reason
14-09260	EB-5-4/25/14 MW-20-5 MW-20-4 MW-20-3 MW-20-2 MW-20-1** MW-18-5 MW-18-4 MW-18-3 DUP-3-2Q14 MW-18-2	pH	J (all detects) UJ (all non-detects)	P	Technical holding times

**NASA JPL, 2Q2014**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-09260**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09260	EB-5-4/25/14	Chloride Sulfate	0.32U mg/L 0.31U mg/L	A



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Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

EB-5-4/25/14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-02

File ID: Tiamo042814-077

Sampled: 04/25/14 06:15

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 19:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2392

Sequence:

1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	6.57	1	J	EPA-150.1

6/2/14



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Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-20-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-03

File ID: Tiamo042814-078

Sampled: 04/25/14 06:45

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 19:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2392

Sequence:

1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.83	1	J	EPA-150.1

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

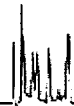
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-20-4
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-04</u>	File ID: <u>Tiamo042814-079</u>	
Sampled: <u>04/25/14 07:30</u>	Prepared: <u>04/28/14 14:00</u>	Analyzed: <u>04/28/14 19:50</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2392</u>	Sequence: <u>1405882</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.01	1	J	EPA-150.1

*6/12/14*



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**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-20-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-05</u>	File ID: <u>Tiamo042814-084</u>	
Sampled: <u>04/25/14 08:10</u>	Prepared: <u>04/28/14 14:00</u>	Analyzed: <u>04/28/14 20:11</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2393</u>	Sequence: <u>1405882</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.16	1	J	EPA-150.1

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Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-20-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-06

File ID: Tiamo042814-086

Sampled: 04/25/14 08:40

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 20:23

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2393

Sequence: 1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.95	1	J	EPA-150.1

*J*  
*6/12/14*



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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07

File ID: Tiamo042814-087

Sampled: 04/25/14 09:10

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 20:29

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2393

Sequence: 1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.03	1	J	EPA-150.1

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

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-18-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-08

File ID: Tiamo042814-088

Sampled: 04/25/14 10:20

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 20:34

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2393

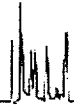
Sequence: 1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.64	1	J	EPA-150.1

*6/2/14*



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Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-18-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-09

File ID: Tiamo042814-089

Sampled: 04/25/14 11:00

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 20:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2393

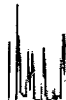
Sequence: 1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.12	1	J	EPA-150.1

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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-18-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10

File ID: Tiamo042814-090

Sampled: 04/25/14 13:30

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 20:46

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2393

Sequence:

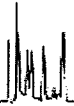
1405882

Calibration: UNASSIGNED

Instrument: MET-1

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

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

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

DUP-3-2Q14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11

File ID: Tiamo042814-091

Sampled: 04/25/14 13:45

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 20:51

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2393

Sequence: 1405882

Calibration: UNASSIGNED

Instrument: MET-1

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

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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12

File ID: Tiamo042814-092

Sampled: 04/25/14 14:30

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 20:57

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2393

Sequence:

1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.87	1	J	EPA-150.1

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

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

EB-5-4/25/14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-02

File ID:

Sampled: 04/25/14 06:15

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

Sequence: 1406175

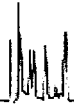
Calibration: UNASSIGNED

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

6/12/14





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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-20-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-03

File ID:

Sampled: 04/25/14 06:45

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

Sequence: 1406175

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	170	1		EPA-160.1

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Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-20-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-04

File ID:

Sampled: 04/25/14 07:30

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

Sequence: 1406175

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

*6/12/14*



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

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-20-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-05

File ID:

Sampled: 04/25/14 08:10

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

Sequence: 1406175

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	190	2	D	EPA-160.1

6/12/14



Tidewater Inc.  
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Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-20-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-06

File ID:

Sampled: 04/25/14 08:40

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

Sequence: 1406175

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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Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07

File ID:

Sampled: 04/25/14 09:10

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

Sequence: 1406175

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

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**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-18-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-08

File ID:

Sampled: 04/25/14 10:20

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

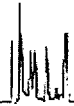
Sequence: 1406175

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	200	2	D	EPA-160.1

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6/12/14



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3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-18-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-09

File ID:

Sampled: 04/25/14 11:00

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

Sequence: 1406175

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	250	2	D	EPA-160.1

6/17/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**MW-18-3**

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10

File ID:

Sampled: 04/25/14 13:30

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

Sequence: 1406175

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

*6/10/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

DUP-3-2Q14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11

File ID:

Sampled: 04/25/14 13:45

Prepared: 04/30/14 13:10

Analyzed: 04/30/14 13:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2559

Sequence: 1406175

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

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12

File ID:

Sampled: 04/25/14 14:30

Prepared: 04/30/14 13:40

Analyzed: 04/30/14 13:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXD2560

Sequence:

1406176

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

EB-5-4/25/14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-02

File ID: E042514.seq-19

Sampled: 04/25/14 06:15

Prepared: 04/25/14 22:30

Analyzed: 04/25/14 23:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.32 <i>u</i>	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	0.31 <i>u</i>	1	J	EPA-300.0

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-20-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-03

File ID: E042514.seq-20

Sampled: 04/25/14 06:45

Prepared: 04/25/14 22:30

Analyzed: 04/26/14 00:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	8.8	1		EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	5.6	1		EPA-300.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-20-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-04

File ID: E042514.seq-23

Sampled: 04/25/14 07:30

Prepared: 04/25/14 22:30

Analyzed: 04/26/14 00:43

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

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	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	12	1		EPA-300.0

*Handwritten signature*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-20-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-05

File ID: E042514.seq-29

Sampled: 04/25/14 08:10

Prepared: 04/25/14 22:30

Analyzed: 04/26/14 02:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

Calibration: UNASSIGNED

Instrument: ICS

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	0.20	1		EPA-300.0
14808-79-8	Sulfate	3.3	1		EPA-300.0

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-20-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-06

File ID: E042514.seq-30

Sampled: 04/25/14 08:40

Prepared: 04/25/14 22:30

Analyzed: 04/26/14 02:16

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	37	1		EPA-300.0
14797-55-8	Nitrate as N	5.0	1		EPA-300.0
14808-79-8	Sulfate	57	1		EPA-300.0

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07

File ID: E042514.seq-31

Sampled: 04/25/14 09:10

Prepared: 04/25/14 22:30

Analyzed: 04/26/14 02:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

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	2.6	1		EPA-300.0
14808-79-8	Sulfate	44	1		EPA-300.0

*6/2/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-18-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-08

File ID: E042514.seq-32

Sampled: 04/25/14 10:20

Prepared: 04/25/14 22:30

Analyzed: 04/26/14 02:43

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

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	0.036	1	J	EPA-300.0
14808-79-8	Sulfate	6.0	1		EPA-300.0

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-18-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-09

File ID: E042514.seq-33

Sampled: 04/25/14 11:00

Prepared: 04/25/14 22:30

Analyzed: 04/26/14 02:57

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.8	1		EPA-300.0
14797-55-8	Nitrate as N	1.0	1		EPA-300.0
14808-79-8	Sulfate	23	1		EPA-300.0

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-18-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10

File ID: E042514.seq-34

Sampled: 04/25/14 13:30

Prepared: 04/25/14 22:30

Analyzed: 04/26/14 03:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

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	1.8	1		EPA-300.0
14808-79-8	Sulfate	39	1		EPA-300.0

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

DUP-3-2Q14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11

File ID: E042514.seq-35

Sampled: 04/25/14 13:45

Prepared: 04/25/14 22:30

Analyzed: 04/26/14 03:23

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2315

Sequence: 1405992

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	1.8	1		EPA-300.0
14808-79-8	Sulfate	39	1		EPA-300.0

*Handwritten signature/initials*  
6/2/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12

File ID: E042514.seq-36

Sampled: 04/25/14 14:30

Prepared: 04/25/14 19:30

Analyzed: 04/26/14 03:37

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2314

Sequence: 1405992

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	14	1	B	EPA-300.0
14797-55-8	Nitrate as N	1.2	1		EPA-300.0
14808-79-8	Sulfate	40	1		EPA-300.0

*6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-20-5
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-03</u>	File ID: <u>F050714.seq-43.0000.txt</u>	
Sampled: <u>04/25/14 06:45</u>	Prepared: <u>05/07/14 21:00</u>	Analyzed: <u>05/08/14 07:42</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0797</u>	Sequence: <u>1406426</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-20-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-04

File ID: F050714.seq-30.0000.txt

Sampled: 04/25/14 07:30

Prepared: 05/07/14 21:00

Analyzed: 05/08/14 04:43

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0797

Sequence: 1406426

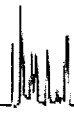
Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 6/18/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-20-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-05</u>	File ID: <u>F050714.seq-44.0000.txt</u>	
Sampled: <u>04/25/14 08:10</u>	Prepared: <u>05/07/14 21:00</u>	Analyzed: <u>05/08/14 07:56</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0797</u>	Sequence: <u>1406426</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-20-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-06</u>	File ID: <u>F050714.seq-50.0000.txt</u>	
Sampled: <u>04/25/14 08:40</u>	Prepared: <u>05/07/14 21:00</u>	Analyzed: <u>05/08/14 09:19</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0798</u>	Sequence: <u>1406426</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07

File ID: F050714.seq-54.0000.txt

Sampled: 04/25/14 09:10

Prepared: 05/07/14 21:00

Analyzed: 05/08/14 10:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0798

Sequence: 1406426

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*6/18/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-18-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-08

File ID: F050714.seq-58.0000.txt

Sampled: 04/25/14 10:20

Prepared: 05/07/14 21:00

Analyzed: 05/08/14 11:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0798

Sequence: 1406426

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-18-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-09</u>	File ID: <u>F050714.seq-59.0000.txt</u>	
Sampled: <u>04/25/14 11:00</u>	Prepared: <u>05/07/14 21:00</u>	Analyzed: <u>05/08/14 11:24</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0798</u>	Sequence: <u>1406426</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	16	1		EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-18-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10RE1

File ID: F050714.seq-69.0000.txt

Sampled: 04/25/14 13:30

Prepared: 05/07/14 21:00

Analyzed: 05/08/14 15:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0798

Sequence: 1406426

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	32	2	D	EPA-314.0

*M  
6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

DUP-3-2Q14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11RE1

File ID: F050714.seq-70.0000.txt

Sampled: 04/25/14 13:45

Prepared: 05/07/14 21:00

Analyzed: 05/08/14 15:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0798

Sequence: 1406426

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	36	2	D	EPA-314.0

*Handwritten signature/initials and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12

File ID: F050714.seq-62.0000.txt

Sampled: 04/25/14 14:30

Prepared: 05/07/14 21:00

Analyzed: 05/08/14 12:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0798

Sequence: 1406426

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**EB-5-4/25/14**

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-02

File ID: 140426 1839 NO2-139

Sampled: 04/25/14 06:15

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:39

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2591

Sequence: 1405902

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

*Handwritten signature/initials*  
6/1/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-20-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-03

File ID: 140426 1839 NO2-140

Sampled: 04/25/14 06:45

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:39

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2591

Sequence: 1405902

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

*Handwritten signature/initials*  
6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-20-4
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-04</u>	File ID: <u>140426 1839 NO2-135</u>	
Sampled: <u>04/25/14 07:30</u>	Prepared: <u>04/26/14 18:39</u>	Analyzed: <u>04/26/14 18:39</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2591</u>	Sequence: <u>1405902</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-20-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-05

File ID: 140426 1839 NO2-141

Sampled: 04/25/14 08:10

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:39

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2591

Sequence: 1405902

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

*Handwritten signature/initials and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-20-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-06

File ID: 140426 1839 NO2-142

Sampled: 04/25/14 08:40

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:39

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2591

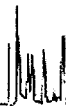
Sequence: 1405902

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

*6/11/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07

File ID: 140426 1839 NO2-145

Sampled: 04/25/14 09:10

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2591

Sequence: 1405902

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

*6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-18-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-08

File ID: 140426 1839 NO2-146

Sampled: 04/25/14 10:20

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2591

Sequence: 1405902

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-18-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-09

File ID: 140426 1839 NO2-147

Sampled: 04/25/14 11:00

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2591

Sequence: 1405902

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

*6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-18-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10

File ID: 140426 1839 NO2-148

Sampled: 04/25/14 13:30

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2591

Sequence: 1405902

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

DUP-3-2Q14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11

File ID: 140426 1839 NO2-151

Sampled: 04/25/14 13:45

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2593

Sequence: 1405902

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12

File ID: 140426 1839 NO2-157

Sampled: 04/25/14 14:30

Prepared: 04/26/14 18:39

Analyzed: 04/26/14 18:46

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2593

Sequence: 1405902

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

EB-5-4/25/14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-02

File ID: 140425 1911 CR6-045

Sampled: 04/25/14 06:15

Prepared: 04/25/14 19:11

Analyzed: 04/25/14 21:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2542

Sequence: 1405870

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

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-20-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-03

File ID: 140425 1911 CR6-046

Sampled: 04/25/14 06:45

Prepared: 04/25/14 19:11

Analyzed: 04/25/14 21:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2542

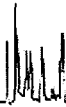
Sequence: 1405870

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-20-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-04

File ID: 140425 1911 CR6-125

Sampled: 04/25/14 07:30

Prepared: 04/25/14 19:11

Analyzed: 04/26/14 00:41

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2545

Sequence: 1405870

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

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-20-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-05

File ID: 140425 1911 CR6-047

Sampled: 04/25/14 08:10

Prepared: 04/25/14 19:11

Analyzed: 04/25/14 21:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2542

Sequence: 1405870

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

*Handwritten signature/initials and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-20-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-06

File ID: 140425 1911 CR6-048

Sampled: 04/25/14 08:40

Prepared: 04/25/14 19:11

Analyzed: 04/25/14 21:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2542

Sequence: 1405870

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00083	1	J	EPA-7196

*Handwritten signature and date: 6/2/14*





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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07

File ID: 140425 1911 CR6-051

Sampled: 04/25/14 09:10

Prepared: 04/25/14 19:11

Analyzed: 04/25/14 22:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2542

Sequence: 1405870

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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6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-18-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09260</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409260-08</u>	File ID: <u>140425 1911 CR6-052</u>	
Sampled: <u>04/25/14 10:20</u>	Prepared: <u>04/25/14 19:11</u>	Analyzed: <u>04/25/14 22:05</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2542</u>	Sequence: <u>1405870</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Handwritten signature*  
6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-18-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-09

File ID: 140425 1911 CR6-053

Sampled: 04/25/14 11:00

Prepared: 04/25/14 19:11

Analyzed: 04/25/14 22:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2542

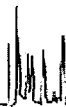
Sequence: 1405870

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0023	1		EPA-7196

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6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-18-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10

File ID: 140425 1911 CR6-054

Sampled: 04/25/14 13:30

Prepared: 04/25/14 19:11

Analyzed: 04/25/14 22:06

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2542

Sequence: 1405870

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0022	1		EPA-7196

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

DUP-3-2Q14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11

File ID: 140425 1911 CR6-057

Sampled: 04/25/14 13:45

Prepared: 04/25/14 19:11

Analyzed: 04/25/14 22:06

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2542

Sequence: 1405870

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0022	1		EPA-7196

*Handwritten signature/initials and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/2/2014 1:08:14PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12

File ID: 140425 1911 CR6-063

Sampled: 04/25/14 14:30

Prepared: 04/25/14 19:11

Analyzed: 04/25/14 22:08

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2542

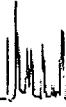
Sequence: 1405870

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

*Handwritten signature and date: 6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

EB-5-4/25/14

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-02

File ID: Tiamo042814-077

Sampled: 04/25/14 06:15

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 19:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2392

Sequence:

1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	6.5	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	5.3	1		SM-2320B

*Handwritten signature/initials*



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3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-20-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-03

File ID: Tiamo042814-078

Sampled: 04/25/14 06:45

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 19:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2392

Sequence: 1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	130	1		SM-2320B
3812-32-6	Carbonate	9.9	1		SM-2320B
---	Total Alkalinity as CaCO3	120	1		SM-2320B

*Handwritten signature and date: 6/2/14*





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Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-20-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-04

File ID: Tiamo042814-079

Sampled: 04/25/14 07:30

Prepared: 04/28/14 14:00

Analyzed: 04/28/14 19:50

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2392

Sequence: 1405882

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	130	1		SM-2320B
3812-32-6	Carbonate	14	1		SM-2320B
---	Total Alkalinity as CaCO3	130	1		SM-2320B

*Handwritten signature and date: 6/10/14*



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3761 Attucks Drive  
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Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-20-3

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-05RE1

File ID: Tiamo-010

Sampled: 04/25/14 08:10

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 13:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0145

Sequence: 1405977

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	93	1		SM-2320B
3812-32-6	Carbonate	15	1		SM-2320B
---	Total Alkalinity as CaCO3	100	1		SM-2320B

*Handwritten signature and date: 6/12/14*



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3761 Attucks Drive  
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Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-20-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-06

File ID: Tiamo-014

Sampled: 04/25/14 08:40

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 13:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0145

Sequence: 1405977

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

*Handwritten signature and date: 6/2/14*



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3761 Attucks Drive  
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Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-20-1

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-07

File ID: Tiamo-015

Sampled: 04/25/14 09:10

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 13:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0145

Sequence: 1405977

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

*Handwritten signature and date: 6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-18-5

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-08

File ID: Tiamo-016

Sampled: 04/25/14 10:20

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 13:34

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0145

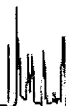
Sequence: 1405977

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	6.9	1		SM-2320B
---	Total Alkalinity as CaCO3	140	1		SM-2320B

*Handwritten signature and date: 6/2/14*



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3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-18-4

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-09

File ID: Tiamo-017

Sampled: 04/25/14 11:00

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 13:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0145

Sequence: 1405977

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	170	1		SM-2320B

*Handwritten signature and date: 6/12/14*



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3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-18-3**

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-10

File ID: Tiamo-018

Sampled: 04/25/14 13:30

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 13:46

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0145

Sequence:

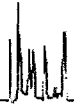
1405977

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

*Cell 114*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**DUP-3-2Q14**

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-11

File ID: Tiamo-019

Sampled: 04/25/14 13:45

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 13:51

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0145

Sequence: 1405977

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

*Handwritten signature/initials and date: 6/2/14*





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3761 Attucks Drive  
Powell, OH 43065

Reported: 6/2/2014 1:08:14PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-18-2

Laboratory: BC Laboratories

SDG: 14-09260

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409260-12

File ID: Tiamo-020

Sampled: 04/25/14 14:30

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 13:57

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0145

Sequence: 1405977

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

*Handwritten signature and date: 6/10/14*

LDC #: 31915B6  
 SDG #: 14-09260  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III/IV

Date: 6-10-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer:

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Nitrite-N (EPA Method 353.2), Hexavalent Chromium (EPA SW846 Method 7196), 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.	Technical holding times	SW	Sampling dates: 4-25-14
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	A	Not reviewed for Level III validation.
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 9 + 10
XI.	Field blanks	SW	EB = 1

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

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

1	EB-5-4/25/14	11	MW-18-2	21	DUP-3-2Q14DUP	31	
2	MW-20-5	12	MW-20-4MS	22		32	
3	MW-20-4	13	MW-20-4MSD	23		33	
4	MW-20-3	14	MW-20-4DUP	24		34	
5	MW-20-2	15	MW-20-3DUP	25		35	
6	MW-20-1**	16	MW-20-1MS	26		36	
7	MW-18-5	17	MW-20-1MSD	27		37	
8	MW-18-4	18	MW-20-1DUP	28		38	
9	MW-18-3	19	DUP-3-2Q14MS	29		39	PBW1
10	DUP-3-2Q14	20	DUP-3-2Q14MSD	30		40	PBW2

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Method:** Inorganics (EPA Method *See cover*)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
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)	✓			
<b>III. Blanks</b>				
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.	✓			
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
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) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2X \text{ CRDL}$ for soil) was used for samples that were $\leq 5X$ the CRDL, including when only one of the duplicate sample values were $\leq 5X$ the CRDL.	✓			
<b>V. Laboratory control samples</b>				
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% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 31915B6

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: J

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			



**VALIDATION FINDINGS WORKSHEET**  
**Technical Holding Times**

All circled dates have exceeded the technical holding time.  
 N N/A Were all samples preserved as applicable to each method?  
 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 4-25-14	19:38 4-28-14	(85.50 hr)				J/UJ/P	
2	06:45 4-25-14	19:44 4-28-14	(85.00)				↓	
3	07:30 4-25-14	19:50 4-28-14	(84.25)					
4	08:10 4-25-14	20:11 4-28-14	(84.00)					
5	08:40 4-25-14	20:23 4-28-14	(83.75)					
6	09:10 4-25-14	20:29 4-28-14	(83.25)					
7	10:20 4-25-14	20:34 4-28-14	(82.25)					
8	11:00 4-25-14	20:40 4-28-14	(81.75)					
9	13:30 4-25-14	20:46 4-28-14	(79.25)					
10	13:45 4-25-14	20:51 4-28-14	(79.00)					
11	14:30 4-25-14	20:57 4-28-14	(78.50)					
15	08:10 4-25-14	20:17 4-28-14	(84.00 ↓)					

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Inorganics, Method See Cover

**Conc. units:** mg/L **Associated Samples:** 11 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (mg/L)		No Qual's.													
Cl	0.26200		1.310														
SO4	0.30700		1.535														

**Conc. units:** mg/L **Associated Samples:** 1-10

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (mg/L)		1													
Cl	0.23500		1.175	0.32													
SO4	0.30300		1.515	0.31													

**Conc. units:** mg/L **Associated Samples:** all

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (mg/L)		1													
Cl		0.22000	1.100	see PB													
SO4		0.36200	1.810														

**Conc. units:** ug/L **Associated Samples:** 1-4 (ND)

Analyte	Blank ID	Blank ID	Blank Action Limit														
	PB	ICB/CCB (ug/L)		No Qual's.													
ClO4	0.74060		3.703														

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

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD	
	9	10		
Total Alkalinity	200	200	0	
Bicarbonate	240	240	0	
Chloride	20	20	0	
Hexavalent Chromium	0.0022	0.0022	0	
Nitrate as N	1.8	1.8	0	
Perchlorate (ug/L)	32	36	12	
pH (pH units)	8.00	8.00	0	
Sulfate	39	39	0	
TDS	330	380	14	





LDC #: 31915B6

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

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

**METHOD:** Inorganics, Method see cover

The correlation coefficient (r) for the calibration of NO<sub>2</sub>-N was recalculated. Calibration date: 3-31-14

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

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

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	Reported	Acceptable (Y/N)
					r or %R	r or %R	
Initial calibration	NO <sub>2</sub> -N	Blank	0.00 (mg/L)	0.012	r <sup>2</sup> =0.999880	r <sup>2</sup> =0.999890	Y
		Standard 1	0.02 ( )	0.023			
		Standard 2	0.05 ( )	0.038			
		Standard 3	0.10 ( )	0.064			
		Standard 4	0.50 ( )	0.273			
		Standard 5	1.00 (↓)	0.546			
		Standard 6	-	-			
Standard 7	-	-					
Calibration verification	ClO <sub>4</sub>	0947 CCV4	9.286 (μg/L)	10.000 (μg/L)	92.9	92.9	
Calibration verification	Cr VI	2205 CCV2	0.050 (mg/L)	0.050 (mg/L)	100	101	
Calibration verification	SO <sub>4</sub>	0109 CCV2	102.84 (mg/L)	100.0 (mg/L)	103	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 #: 31915B6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

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

**METHOD:** Inorganics, Method see cover

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
<u>206</u>  <u>LCS</u>	Laboratory control sample	<u>Cr VI</u>	<u>0.0490 (mg/L)</u>	<u>0.050 (mg/L)</u>	<u>98.0</u>	<u>97.1</u>	<u>Y</u>
<u>0136</u> <u>12</u>	Matrix spike sample	<u>Cl</u>	(SSR-SR) <u>56.02 (mg/L)</u>	<u>50.505 (mg/L)</u>	<u>111</u>	<u>111</u>	↓
<u>15</u>	Duplicate sample	<u>Total Alk</u>	<u>100.10 (mg/L)</u>	<u>99.95 (mg/L)</u>	<u>0.15</u>	<u>1.81</u>	

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.

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## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 28, 2014  
**LDC Report Date:** June 10, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09332

### Sample Identification

TB-6-4/28/14  
EB-6-4/28/14  
MW-17-5  
MW-17-4  
MW-17-3  
MW-17-2  
MW-17-1  
MW-19-5  
MW-19-4  
MW-26-2  
MW-26-1  
MW-17-1MS  
MW-17-1MSD

## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## 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
4/29/14	Bromomethane	40.0	All samples in SDG 14-09332	J (all detects) UJ (all non-detects)	P

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

## V. Blanks

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

## VI. Surrogate Spikes

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

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

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

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

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

Sample TB-6-4/28/14 was identified as a trip blank. No volatile contaminants were found.

Sample EB-6-4/28/14 was identified as an equipment blank. No volatile contaminants were found.



**NASA JPL, 2Q2014**  
**Volatiles - Data Qualification Summary - SDG 14-09332**

SDG	Sample	Compound	Flag	A or P	Reason
14-09332	TB-6-4/28/14 EB-6-4/28/14 MW-17-5 MW-17-4 MW-17-3 MW-17-2 MW-17-1 MW-19-5 MW-19-4 MW-26-2 MW-26-1	Bromomethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL, 2Q2014**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-09332**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

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

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-6-4/28/14

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-01 File ID: 29APR09.D  
Sampled: 04/28/14 06:00 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 12:51  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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 <i>WJ</i>
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

*5/31/14*



Tidewater Inc.  
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Powell, OH 43065

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Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

TB-6-4/28/14

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-01 File ID: 29APR09.D  
Sampled: 04/28/14 06:00 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 12:51  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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

6/12/14



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

TB-6-4/28/14

Laboratory: BC Laboratories SDG: 14-09332  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409332-01 File ID: 29APR09.D  
 Sampled: 04/28/14 06:00 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 12:51  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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	10.780	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.040	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2200	92.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	235815	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	79824	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	310188	7.52	320584	7.51	

Handwritten signature: 5/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

TB-6-4/28/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-01</u>	File ID:	<u>29APR09.D</u>		
Sampled:	<u>04/28/14 06:00</u>	Prepared:	<u>04/29/14 08:40</u>	Analyzed:	<u>04/29/14 12:51</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2412</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten:* 6/12/14



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Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

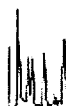
EPA-524.2

EB-6-4/28/14

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-02 File ID: 29APR10.D  
Sampled: 04/28/14 06:20 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 13:14  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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 <i>WJ</i>
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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

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

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-6-4/28/14

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-02 File ID: 29APR10.D  
Sampled: 04/28/14 06:20 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 13:14  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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

5/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-6-4/28/14

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-02 File ID: 29APR10.D  
Sampled: 04/28/14 06:20 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 13:14  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 Instrument: MS-V5

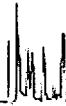
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	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	10.900	109	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9500	99.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2600	92.6	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	233934	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	79829	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	320222	7.52	320584	7.51	

6/12/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**EB-6-4/28/14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-02</u>	File ID:	<u>29APR10.D</u>		
Sampled:	<u>04/28/14 06:20</u>	Prepared:	<u>04/29/14 08:40</u>	Analyzed:	<u>04/29/14 13:14</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2412</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*9/12/14*



*[Handwritten signature]*

Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

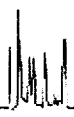
EPA-524.2

MW-17-5

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-03 File ID: 29APR11.D  
Sampled: 04/28/14 07:00 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 13:37  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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 <i>WJ</i>
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	1.0	
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.89	
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

*5/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-17-5

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-03 File ID: 29APR11.D  
Sampled: 04/28/14 07:00 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 13:37  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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	0.55	
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	3.3	
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

10/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-17-5

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-03 File ID: 29APR11.D  
Sampled: 04/28/14 07:00 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 13:37  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 Instrument: MS-V5

Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Shows monitoring results for surrogate compounds.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Lists internal standards used for calibration.

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 3:59:19PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-17-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-03</u>	File ID:	<u>29APR11.D</u>		
Sampled:	<u>04/28/14 07:00</u>	Prepared:	<u>04/29/14 08:40</u>	Analyzed:	<u>04/29/14 13:37</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2412</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature/initials*  
5/31/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

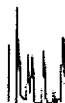
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-17-4

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-04 File ID: 29APR12.D  
Sampled: 04/28/14 07:40 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 13:59  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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 <i>WJ</i>
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	0.78	
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

*Handwritten signature*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-17-4

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-04 File ID: 29APR12.D  
Sampled: 04/28/14 07:40 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 13:59  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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	0.41	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	2.4	
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

8/2/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-17-4

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-04 File ID: 29APR12.D  
Sampled: 04/28/14 07:40 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 13:59  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 Instrument: MS-V5

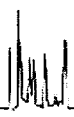
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	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	10.960	110	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.220	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5500	95.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	233264	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	77070	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	306313	7.52	320584	7.51	

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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

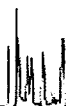
**EPA-524.2**

MW-17-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-04</u>	File ID:	<u>29APR12.D</u>		
Sampled:	<u>04/28/14 07:40</u>	Prepared:	<u>04/29/14 08:40</u>	Analyzed:	<u>04/29/14 13:59</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2412</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

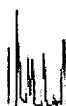
EPA-524.2

MW-17-3

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-05 File ID: 29APR13.D  
Sampled: 04/28/14 08:15 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 14:21  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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 <i>US</i>
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	0.20	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

*2/6/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-17-3

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-05 File ID: 29APR13.D  
Sampled: 04/28/14 08:15 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 14:21  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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	0.17	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	0.21	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

10/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-17-3

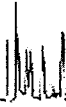
Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-05 File ID: 29APR13.D  
Sampled: 04/28/14 08:15 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 14:21  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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	11.370	114	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.040	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3100	93.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	227818	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	76151	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	303880	7.51	320584	7.51	

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-17-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-05</u>	File ID:	<u>29APR13.D</u>		
Sampled:	<u>04/28/14 08:15</u>	Prepared:	<u>04/29/14 08:02</u>	Analyzed:	<u>04/29/14 14:21</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

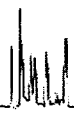
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-17-2

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-06 File ID: 29APR14.D  
Sampled: 04/28/14 10:30 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 14:44  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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 <i>UJ</i>
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

*Handwritten signature*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

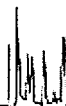
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-17-2

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-06 File ID: 29APR14.D  
Sampled: 04/28/14 10:30 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 14:44  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-17-2

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-06 File ID: 29APR14.D  
Sampled: 04/28/14 10:30 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 14:44  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 Instrument: MS-V5

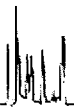
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	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	11.420	114	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.230	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6600	96.6	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	228437	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	74097	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	301093	7.51	320584	7.51	

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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-17-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-06</u>	File ID:	<u>29APR14.D</u>		
Sampled:	<u>04/28/14 10:30</u>	Prepared:	<u>04/29/14 08:02</u>	Analyzed:	<u>04/29/14 14:44</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-17-1

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-07 File ID: 29APR15.D  
Sampled: 04/28/14 11:10 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 15:07  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-17-1

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-07 File ID: 29APR15.D  
Sampled: 04/28/14 11:10 Prepared: 04/29/14 08:40 Analyzed: 04/29/14 15:07  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405777 Calibration: 1404015 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	11.040	110	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	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)	221603	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	70767	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	291830	7.51	320584	7.51	

9/6/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-17-1

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-07</u>	File ID:	<u>29APR15.D</u>		
Sampled:	<u>04/28/14 11:10</u>	Prepared:	<u>04/29/14 08:40</u>	Analyzed:	<u>04/29/14 15:07</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2412</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature and date: 5/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-5

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-08 File ID: 29APR16.D  
Sampled: 04/28/14 12:00 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 15:29  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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 <i>WJ</i>
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	0.21	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

*9/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-5

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-08 File ID: 29APR16.D  
Sampled: 04/28/14 12:00 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 15:29  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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	0.56	
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	0.090	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

Handwritten signature and date: 5/31/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-19-5

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-08 File ID: 29APR16.D  
Sampled: 04/28/14 12:00 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 15:29  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 Instrument: MS-V5

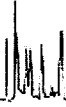
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	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	11.130	111	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9600	99.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.5500	85.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	212490	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	70867	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	282377	7.51	320584	7.51	

9/21/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**MW-19-5**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-08</u>	File ID:	<u>29APR16.D</u>		
Sampled:	<u>04/28/14 12:00</u>	Prepared:	<u>04/29/14 08:02</u>	Analyzed:	<u>04/29/14 15:29</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-4

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-09 File ID: 29APR17.D  
Sampled: 04/28/14 12:40 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 15:52  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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 <i>NT</i>
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-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: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

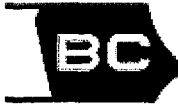
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-4

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-09 File ID: 29APR17.D  
Sampled: 04/28/14 12:40 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 15:52  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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	0.47	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	0.090	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: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-19-4

Laboratory: BC Laboratories      SDG: 14-09332  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409332-09      File ID: 29APR17.D  
Sampled: 04/28/14 12:40      Prepared: 04/29/14 08:02      Analyzed: 04/29/14 15:52  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2294      Sequence: 1405777      Calibration: 1404015      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	11.700	117	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6700	96.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	227203	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	74265	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	294802	7.52	320584	7.51	

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-19-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-09</u>	File ID:	<u>29APR17.D</u>		
Sampled:	<u>04/28/14 12:40</u>	Prepared:	<u>04/29/14 08:02</u>	Analyzed:	<u>04/29/14 15:52</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature/initials*



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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

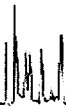
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-26-2

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-10 File ID: 29APR18.D  
Sampled: 04/28/14 13:30 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 16:14  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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	0.19	J
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U <i>UT</i>
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	1.3	
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	0.10	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

*9/6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-26-2

Laboratory: BC Laboratories      SDG: 14-09332  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409332-10      File ID: 29APR18.D  
Sampled: 04/28/14 13:30      Prepared: 04/29/14 08:02      Analyzed: 04/29/14 16:14  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2294      Sequence: 1405777      Calibration: 1404015      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	2.2	
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	0.32	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

M/G/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-26-2

Laboratory: BC Laboratories      SDG: 14-09332  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409332-10      File ID: 29APR18.D  
Sampled: 04/28/14 13:30      Prepared: 04/29/14 08:02      Analyzed: 04/29/14 16:14  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2294      Sequence: 1405777      Calibration: 1404015      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	11.270	113	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8700	98.7	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2300	92.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	225229	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	73661	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	294981	7.52	320584	7.51	

*Handwritten signature/initials*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-26-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-10</u>	File ID:	<u>29APR18.D</u>		
Sampled:	<u>04/28/14 13:30</u>	Prepared:	<u>04/29/14 08:02</u>	Analyzed:	<u>04/29/14 16:14</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Handwritten signature/initials*  
5/30/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-26-1

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-11 File ID: 29APR19.D  
Sampled: 04/28/14 14:10 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 16:37  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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 MS
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

6/12/14

Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**MW-26-1**

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-11 File ID: 29APR19.D  
Sampled: 04/28/14 14:10 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 16:37  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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	0.54	
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	0.43	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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-26-1

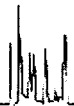
Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-11 File ID: 29APR19.D  
Sampled: 04/28/14 14:10 Prepared: 04/29/14 08:02 Analyzed: 04/29/14 16:37  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2294 Sequence: 1405777 Calibration: 1404015 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	11.520	115	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.260	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4300	94.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	218941	6.73	236871	6.73	
Chlorobenzene-d5 (IS)	73285	9.73	82515	9.73	
1,4-Difluorobenzene (IS)	289640	7.51	320584	7.51	

*K  
6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 3:59:19PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-26-1

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09332</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409332-11</u>	File ID:	<u>29APR19.D</u>		
Sampled:	<u>04/28/14 14:10</u>	Prepared:	<u>04/29/14 08:02</u>	Analyzed:	<u>04/29/14 16:37</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2294</u>	Sequence:	<u>1405777</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*g/12/14*

LDC #: 31915C1  
 SDG #: 14-09332  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/9/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**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.	Technical holding times	A	Sampling dates: 4/28/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 20%, r <sup>2</sup>
IV.	Continuing calibration/ICV	SW	ICV/CCV ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	AN or	
VIII.	Laboratory control samples	A	* LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentitatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 1 EB = 2

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

Validated Samples: water

1	TB-6-4/28/14	11	MW-26-1	21	31	BX D2412 - BLK
2	EB-6-4/28/14	12	MW-17-1MS	22	32	BX D2412 - BLK
3	MW-17-5	13	MW-17-1MSD	23	33	
4	MW-17-4	14		24	34	
5	MW-17-3	15		25	35	
6	MW-17-2	16		26	36	
7	MW-17-1	17		27	37	
8	MW-19-5	18		28	38	
9	MW-19-4	19		29	39	
10	MW-26-2	20		30	40	

## 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.





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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 28, 2014  
**LDC Report Date:** June 10, 2014  
**Matrix:** Water  
**Parameters:** Polynuclear Aromatic Hydrocarbons  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09332

**Sample Identification**

MW-17-3

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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

In the case where 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 method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

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

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

## **V. Blanks**

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

## **VI. Surrogate Spikes**

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

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

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**

**Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 14-09332**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary  
- SDG 14-09332**

No Sample Data Qualified in this SDG



C

Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:09PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-8270C-SIM

MW-17-3

Laboratory: BC Laboratories SDG: 14-09332  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409332-05 File ID: 05may015.D  
Sampled: 04/28/14 08:15 Prepared: 04/30/14 22:00 Analyzed: 05/05/14 17:32  
Solids: Preparation: EPA 3510B Initial/Final: 1000 ml / 0.99 ml  
Batch: BXE0478 Sequence: 1406282 Calibration: 1405008 Instrument: MS-B7

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
83-32-9	Acenaphthene	0.99	0.034	U
208-96-8	Acenaphthylene	0.99	0.034	U
120-12-7	Anthracene	0.99	0.034	U
56-55-3	Benzo[a]anthracene	0.99	0.034	U
205-99-2	Benzo[b]fluoranthene	0.99	0.034	U
207-08-9	Benzo[k]fluoranthene	0.99	0.034	U
50-32-8	Benzo[a]pyrene	0.99	0.034	U
191-24-2	Benzo[g,h,i]perylene	0.99	0.034	U
218-01-9	Chrysene	0.99	0.034	U
53-70-3	Dibenzo[a,h]anthracene	0.99	0.034	U
206-44-0	Fluoranthene	0.99	0.034	U
86-73-7	Fluorene	0.99	0.034	U
193-39-5	Indeno[1,2,3-cd]pyrene	0.99	0.034	U
91-20-3	Naphthalene	0.99	0.034	U
85-01-8	Phenanthrene	0.99	0.034	U
129-00-0	Pyrene	0.99	0.034	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Nitrobenzene-d5 (Surrogate)	4.0000	3.8016	95.0	42 - 130	
2-Fluorobiphenyl (Surrogate)	4.0000	3.5442	88.6	50 - 116	
p-Terphenyl-d14 (Surrogate)	4.0000	4.2867	107	43 - 134	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Acenaphthene-d10 (IS)	341286	5.939	346574	5.934	
Phenanthrene-d10 (IS)	480737	7.376	503614	7.373	
Chrysene-d12 (IS)	300911	10.918	370727	10.911	
Perylene-d12 (IS)	177044	12.839	254798	12.833	
Naphthalene-d8 (IS)	662997	4.534	669547	4.528	
1,4-Dichlorobenzene-d4 (IS)	200758	3.595	204199	3.586	

\* Values outside of QC limits

6/12/14

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270C-SIM)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/28/13 <sup>4</sup> <sub>m</sub>
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RCD ≤ 30/157, r <sup>2</sup>
IV.	Continuing calibration/ICV	A	100% CCV ≤ 20?
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	Client spec.
VIII.	Laboratory control samples	A	LCs
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: *Water*

1	MW-17-3	11		21		31	BR 150478 - BLKJ
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 28, 2014  
**LDC Report Date:** June 12, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09332

**Sample Identification**

EB-6-4/28/14  
MW-17-5  
MW-17-4  
MW-17-3  
MW-17-2  
MW-17-1  
MW-19-5  
MW-19-4  
MW-26-2  
MW-26-1  
MW-17-1MS  
MW-17-1MSD  
MW-17-1DUP



## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Methods 200.7 and 200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron	28.636 ug/L	All samples in SDG 14-09332
ICB/CCB	Iron	34.311 ug/L	All samples in SDG 14-09332
PB (prep blank)	Calcium Magnesium Sodium	0.019544 mg/L 0.031857 mg/L 0.057090 mg/L	All samples in SDG 14-09332
ICB/CCB	Magnesium Sodium	0.027932 mg/L 0.052786 mg/L	EB-6-4/28/14 MW-17-1
ICB/CCB	Sodium	0.044984 mg/L	MW-17-5 MW-17-4 MW-17-3 MW-17-2 MW-19-5 MW-19-4 MW-26-2 MW-26-1

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-17-4	Iron	100 ug/L	100U ug/L
MW-17-3	Iron	110 ug/L	110U ug/L
MW-17-1	Iron	87 ug/L	87U ug/L
MW-19-5	Iron	20 ug/L	20U ug/L
MW-19-4	Iron	48 ug/L	48U ug/L
EB-6-4/28/14	Calcium Sodium	0.031 mg/L 0.071 mg/L	0.031U mg/L 0.071U mg/L

#### V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For MW-17-1MS/MSD, no data were qualified for Sodium percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

#### VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

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

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

#### IX. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

#### X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

### **XI. Sample Result Verification**

Raw data were not reviewed for this SDG.

### **XII. Overall Assessment of Data**

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

### **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

### **XV. Field Blanks**

Sample EB-6-4/28/14 was identified as an equipment blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-6-4/28/14	Calcium Sodium	0.031 mg/L 0.071 mg/L

**NASA JPL, 2Q2014**

**Metals - Data Qualification Summary - SDG 14-09332**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**Metals - Laboratory Blank Data Qualification Summary - SDG 14-09332**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09332	MW-17-4	Iron	100U ug/L	A
14-09332	MW-17-3	Iron	110U ug/L	A
14-09332	MW-17-1	Iron	87U ug/L	A
14-09332	MW-19-5	Iron	20U ug/L	A
14-09332	MW-19-4	Iron	48U ug/L	A
14-09332	EB-6-4/28/14	Calcium Sodium	0.031U mg/L 0.071U mg/L	A



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-6-4/28/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-02</u>	File ID: <u>PE2_140501-181</u>	
Sampled: <u>04/28/14 06:20</u>	Prepared: <u>05/01/14 08:20</u>	Analyzed: <u>05/01/14 22:54</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0109</u>	Sequence: <u>1406384</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

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

*Handwritten signature and date: 6/12/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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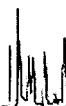
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-17-5
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-03</u>	File ID: <u>PE2_140501-185</u>	
Sampled: <u>04/28/14 07:00</u>	Prepared: <u>05/01/14 08:20</u>	Analyzed: <u>05/01/14 23:04</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0109</u>	Sequence: <u>1406384</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	310	1	B	EPA-200.7

K  
6/12/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-04

File ID: PE2 140501-186

Sampled: 04/28/14 07:40

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:07

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

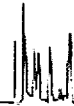
Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	100 <i>u</i>	1	B	EPA-200.7

*6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-05</u>	File ID: <u>PE2 140501-187</u>	
Sampled: <u>04/28/14 08:15</u>	Prepared: <u>05/01/14 08:20</u>	Analyzed: <u>05/01/14 23:09</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0109</u>	Sequence: <u>1406384</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	110 <i>u</i>	1	B	EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-06

File ID: PE2\_140501-188

Sampled: 04/28/14 10:30

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:12

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	850	1	B	EPA-200.7

*6/17/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-07

File ID: PE2 140501-175

Sampled: 04/28/14 11:10

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 22:40

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	87 <i>u</i>	1	B	EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-08</u>	File ID: <u>PE2 140501-189</u>	
Sampled: <u>04/28/14 12:00</u>	Prepared: <u>05/01/14 08:20</u>	Analyzed: <u>05/01/14 23:14</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0109</u>	Sequence: <u>1406384</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	20 <i>u</i>	1	JB	EPA-200.7

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-09</u>	File ID: <u>PE2 140501-190</u>	
Sampled: <u>04/28/14 12:40</u>	Prepared: <u>05/01/14 08:20</u>	Analyzed: <u>05/01/14 23:16</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0109</u>	Sequence: <u>1406384</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	48 <i>u</i>	1	JB	EPA-200.7

*6/17/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-26-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-10

File ID: PE2 140501-191

Sampled: 04/28/14 13:30

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:19

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	2100	1	B	EPA-200.7

*Handwritten signature and date: 6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-26-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-11

File ID: PE2 140501-192

Sampled: 04/28/14 14:10

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:21

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1800	1	B	EPA-200.7

*g*  
*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

EB-6-4/28/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-02</u>
Sampled: <u>04/28/14 06:20</u>	File ID: <u>PE_EL2_140505-214</u>
Solids: <u>0.00</u>	Prepared: <u>05/02/14 08:30</u>
Batch: <u>BXE0225</u>	Analyzed: <u>05/06/14 03:53</u>
Sequence: <u>1406228</u>	Preparation: <u>EPA 200.2</u>
	Initial/Final: <u>50 ml / 50 ml</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-EL2</u>

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

*Handwritten signature and date: 6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

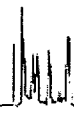
**EPA-200.8**

MW-17-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-03</u>	File ID: <u>PE_EL2_140505-215</u>	
Sampled: <u>04/28/14 07:00</u>	Prepared: <u>05/02/14 08:30</u>	Analyzed: <u>05/06/14 03:56</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0225</u>	Sequence: <u>1406228</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	3.3	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	1.5	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.25	1	J	EPA-200.8

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-17-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-04

File ID: PE\_EL2\_140505-216

Sampled: 04/28/14 07:40

Prepared: 05/02/14 08:30

Analyzed: 05/06/14 04:00

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0225

Sequence: 1406228

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.9	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	2.5	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-17-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-05</u>	File ID: <u>PE_EL2_140505-217</u>	
Sampled: <u>04/28/14 08:15</u>	Prepared: <u>05/02/14 08:30</u>	Analyzed: <u>05/06/14 04:03</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0225</u>	Sequence: <u>1406228</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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	1.2	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-17-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-06

File ID: PE\_EL2\_140505-218

Sampled: 04/28/14 10:30

Prepared: 05/02/14 08:30

Analyzed: 05/06/14 04:06

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0225

Sequence: 1406228

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-17-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-07

File ID: PE\_EL2\_140505-186

Sampled: 04/28/14 11:10

Prepared: 05/02/14 08:30

Analyzed: 05/06/14 02:23

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0225

Sequence: 1406228

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-19-5
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-08</u>	File ID: <u>PE_EL2_140505-219</u>	
Sampled: <u>04/28/14 12:00</u>	Prepared: <u>05/02/14 08:30</u>	Analyzed: <u>05/06/14 04:09</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0225</u>	Sequence: <u>1406228</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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	1.4	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-19-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-09

File ID: PE\_EL2\_140505-220

Sampled: 04/28/14 12:40

Prepared: 05/02/14 08:30

Analyzed: 05/06/14 04:12

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0225

Sequence: 1406228

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	2.6	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Handwritten signature and date: 6/17/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-26-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-10

File ID: PE\_EL2\_140505-221

Sampled: 04/28/14 13:30

Prepared: 05/02/14 08:30

Analyzed: 05/06/14 04:16

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0225

Sequence: 1406228

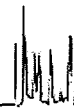
Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.3	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	5.0	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-26-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-11

File ID: PE EL2 140505-222

Sampled: 04/28/14 14:10

Prepared: 05/02/14 08:30

Analyzed: 05/06/14 04:19

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0225

Sequence: 1406228

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

EB-6-4/28/14

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-02

File ID: PE2 140501-181

Sampled: 04/28/14 06:20

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 22:54

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.031 <i>u</i>	1	J	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.071 <i>u</i>	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**EB-6-4/28/14**

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-02

File ID: PE2\_140507-049

Sampled: 04/28/14 06:20

Prepared: 05/01/14 08:20

Analyzed: 05/07/14 12:41

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-03

File ID: PE2 140501-185

Sampled: 04/28/14 07:00

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:04

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

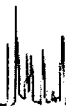
Sequence: 1406384

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	43	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	48	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.9	1		EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-03

File ID: PE2\_140507-054

Sampled: 04/28/14 07:00

Prepared: 05/01/14 08:20

Analyzed: 05/07/14 12:54

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	13	1	B	EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-17-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-04

File ID: PE2 140501-186

Sampled: 04/28/14 07:40

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:07

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

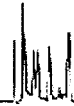
Sequence: 1406384

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
7440-23-5	Total Recoverable Sodium	41	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:02:16PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-04</u>	File ID: <u>PE2_140507-055</u>	
Sampled: <u>04/28/14 07:40</u>	Prepared: <u>05/01/14 08:20</u>	Analyzed: <u>05/07/14 12:56</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0109</u>	Sequence: <u>1406390</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	15	1	B	EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-17-3

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-05

File ID: PE2\_140501-187

Sampled: 04/28/14 08:15

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:09

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

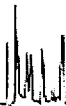
Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	58	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	28	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

*Handwritten signature and date: 6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-3

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-05

File ID: PE2\_140507-056

Sampled: 04/28/14 08:15

Prepared: 05/01/14 08:20

Analyzed: 05/07/14 12:59

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	32	1	B	EPA-200.7

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-06

File ID: PE2\_140501-188

Sampled: 04/28/14 10:30

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:12

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

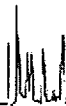
Sequence: 1406384

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
7440-23-5	Total Recoverable Sodium	18	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.7	1		EPA-200.7

*K  
6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-06

File ID: PE2\_140507-057

Sampled: 04/28/14 10:30

Prepared: 05/01/14 08:20

Analyzed: 05/07/14 13:01

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	19	1	B	EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-17-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-07

File ID: PE2\_140501-175

Sampled: 04/28/14 11:10

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 22:40

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

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
7440-23-5	Total Recoverable Sodium	19	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-17-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-07

File ID: PE2\_140507-043

Sampled: 04/28/14 11:10

Prepared: 05/01/14 08:20

Analyzed: 05/07/14 12:27

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

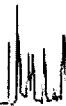
Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	19	1	B	EPA-200.7

*Handwritten signature and date: 5/6/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-08

File ID: PE2\_140501-189

Sampled: 04/28/14 12:00

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:14

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

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
7440-23-5	Total Recoverable Sodium	30	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.5	1		EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-08

File ID: PE2\_140507-058

Sampled: 04/28/14 12:00

Prepared: 05/01/14 08:20

Analyzed: 05/07/14 13:04

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence:

1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	29	1	B	EPA-200.7

5/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-19-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-09

File ID: PE2 140501-190

Sampled: 04/28/14 12:40

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:16

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

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
7440-23-5	Total Recoverable Sodium	31	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.4	1		EPA-200.7

*Handwritten signature and date: 6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-19-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-09

File ID: PE2 140507-059

Sampled: 04/28/14 12:40

Prepared: 05/01/14 08:20

Analyzed: 05/07/14 13:06

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	28	1	B	EPA-200.7

6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-26-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-10

File ID: PE2\_140501-191

Sampled: 04/28/14 13:30

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:19

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

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
7440-23-5	Total Recoverable Sodium	52	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-26-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-10

File ID: PE2 140507-060

Sampled: 04/28/14 13:30

Prepared: 05/01/14 08:20

Analyzed: 05/07/14 13:09

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence:

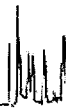
1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	35	1	B	EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-26-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-11

File ID: PE2 140501-192

Sampled: 04/28/14 14:10

Prepared: 05/01/14 08:20

Analyzed: 05/01/14 23:21

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406384

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
7440-23-5	Total Recoverable Sodium	35	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:02:16PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-26-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-11

File ID: PE2\_140507-061

Sampled: 04/28/14 14:10

Prepared: 05/01/14 08:20

Analyzed: 05/07/14 13:11

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0109

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	45	1	B	EPA-200.7

*Handwritten signature and date: 5/12/14*

LDC #: 31915C4

**VALIDATION COMPLETENESS WORKSHEET**

Date: 6-11-14

SDG #: 14-09332

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: MG

2nd Reviewer: *[Signature]***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.	Technical holding times	A	Sampling dates: 4-28-14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	A	MS/MSD Na-4x
VII.	Duplicate Sample Analysis	A	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	not reviewed
X.	ICP Serial Dilution	N	not performed
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	SW	EB=1

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

*all water*

1	EB-6-4/28/14	11	MW-17-1MS	21		31	
2	MW-17-5	12	MW-17-1MSD	22		32	
3	MW-17-4	13	MW-17-1DUP	23		33	
4	MW-17-3	14		24		34	
5	MW-17-2	15		25		35	
6	MW-17-1	16		26		36	
7	MW-19-5	17		27		37	
8	MW-19-4	18		28		38	
9	MW-26-2	19		29		39	
10	MW-26-1	20		30		40	PBW

Notes: \_\_\_\_\_



LDC #: 31915C4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: ug/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: all

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

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	3	4	6	7	8					
Fe		28.636	34.311	171.6	100	110	87	20	48					

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: all

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1									
Ca		0.019544		0.098	0.031									
Mg		0.031857		0.159										
Na		0.057090		0.285	0.071									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1,6

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1									
Mg			0.027932	0.140										
Na			0.052786	0.264	see PB									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 2-5,7-10 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Na			0.044984	0.225										

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.





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 28, 2014  
**LDC Report Date:** June 12, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09332

### Sample Identification

EB-6-4/28/14  
MW-17-5  
MW-17-4  
MW-17-3  
MW-17-2  
MW-17-1  
MW-19-5  
MW-19-4  
MW-26-2  
MW-26-1  
MW-17-3DUP  
MW-17-1MS  
MW-17-1MSD  
MW-17-1DUP  
MW-26-1DUP

## Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 353.2 for Nitrite as Nitrogen, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

## **II. 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. Blanks**

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

## **V. Matrix Spike/Matrix Spike Duplicates**

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

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

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

## **VIII. Sample Result Verification**

Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

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

## **X. Field Duplicates**

No field duplicates were identified in this SDG.

## XI. Field Blanks

Sample EB-6-4/28/14 was identified as an equipment blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-6-4/28/14	pH Chloride Bicarbonate Total alkalinity	6.62 pH units 0.19 mg/L 5.6 mg/L 4.6 mg/L

**NASA JPL, 2Q2014**  
**Wet Chemistry - Data Qualification Summary - SDG 14-09332**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-09332**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

EB-6-4/28/14

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-02

File ID: Tiamo042914-046

Sampled: 04/28/14 06:20

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 15:50

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2513

Sequence: 1405898

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	6.62	1		EPA-150.1

*Handwritten signature/initials*  
6/12/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-17-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-03

File ID: Tiamo042914-047

Sampled: 04/28/14 07:00

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 15:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2513

Sequence: 1405898

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.16	1		EPA-150.1

*Handwritten:* 6/12/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-17-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-04

File ID: Tiamo042914-048

Sampled: 04/28/14 07:40

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 16:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2513

Sequence: 1405898

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.91	1		EPA-150.1

*Handwritten signature/initials*  
5/30/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

<b>MW-17-3</b>
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-05</u>	File ID: <u>Tiamo042914-053</u>	
Sampled: <u>04/28/14 08:15</u>	Prepared: <u>04/29/14 07:00</u>	Analyzed: <u>04/29/14 16:24</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2514</u>	Sequence: <u>1405898</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-17-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-06

File ID: Tiamo042914-055

Sampled: 04/28/14 10:30

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 16:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2514

Sequence: 1405898

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.84	1		EPA-150.1

*Handwritten signature/initials*  
5/30/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

**MW-17-1**

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-07

File ID: Tiamo042914-056

Sampled: 04/28/14 11:10

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 16:43

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2514

Sequence: 1405898

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.83	1		EPA-150.1

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-19-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-08

File ID: Tiamo042914-057

Sampled: 04/28/14 12:00

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 16:50

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2514

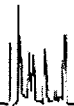
Sequence: 1405898

Calibration: UNASSIGNED

Instrument: MET-1

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

5/30/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-19-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-09

File ID: Tiamo042914-058

Sampled: 04/28/14 12:40

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 16:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2514

Sequence: 1405898

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.76	1		EPA-150.1

*Handwritten signature and date: 5/30/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-26-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-10

File ID: Tiamo042914-059

Sampled: 04/28/14 13:30

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 17:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2514

Sequence: 1405898

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.08	1		EPA-150.1

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-26-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-11

File ID: Tiamo042914-060

Sampled: 04/28/14 14:10

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 17:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2514

Sequence: 1405898

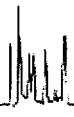
Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.56	1		EPA-150.1

*6/17/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

EB-6-4/28/14

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-02

File ID:

Sampled: 04/28/14 06:20

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

Sequence: 1406181

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-17-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-03

File ID:

Sampled: 04/28/14 07:00

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

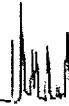
Sequence: 1406181

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

*Handwritten signature and date: 6/17/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-17-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-04

File ID:

Sampled: 04/28/14 07:40

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

Sequence: 1406181

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

*9/6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-17-3

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-05

File ID:

Sampled: 04/28/14 08:15

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

Sequence: 1406181

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-17-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-06

File ID:

Sampled: 04/28/14 10:30

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

Sequence: 1406181

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	270	2	D	EPA-160.1

*g*  
*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-17-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-07

File ID:

Sampled: 04/28/14 11:10

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

Sequence: 1406181

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

*Handwritten signature and date: 5/30/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**MW-19-5**

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-08

File ID:

Sampled: 04/28/14 12:00

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

Sequence: 1406181

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

*6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**MW-19-4**

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-09

File ID:

Sampled: 04/28/14 12:40

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

Sequence: 1406181

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

*per 6/12/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-26-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-10

File ID:

Sampled: 04/28/14 13:30

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

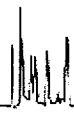
Sequence: 1406181

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	470	3.33	D	EPA-160.1

*9/6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-26-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-11

File ID:

Sampled: 04/28/14 14:10

Prepared: 05/01/14 14:30

Analyzed: 05/01/14 14:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0142

Sequence: 1406181

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	580	3.33	D	EPA-160.1

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**EB-6-4/28/14**

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-02

File ID: B042814A.seq-05

Sampled: 04/28/14 06:20

Prepared: 04/28/14 23:30

Analyzed: 04/29/14 01:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2405

Sequence: 1406070

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.19	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	0.18	1	U	EPA-300.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-17-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-03

File ID: B042814A.seq-06

Sampled: 04/28/14 07:00

Prepared: 04/28/14 23:30

Analyzed: 04/29/14 01:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2405

Sequence: 1406070

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	27	1		EPA-300.0
14797-55-8	Nitrate as N	3.9	1		EPA-300.0
14808-79-8	Sulfate	35	1		EPA-300.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-17-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-04</u>	File ID: <u>B042814A.seq-07</u>	
Sampled: <u>04/28/14 07:40</u>	Prepared: <u>04/28/14 23:30</u>	Analyzed: <u>04/29/14 01:51</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2405</u>	Sequence: <u>1406070</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	29	1		EPA-300.0
14797-55-8	Nitrate as N	4.5	1		EPA-300.0
14808-79-8	Sulfate	36	1		EPA-300.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-17-3

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-05

File ID: B042814A.seq-08

Sampled: 04/28/14 08:15

Prepared: 04/28/14 23:30

Analyzed: 04/29/14 02:07

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2405

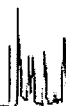
Sequence: 1406070

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	52	1		EPA-300.0
14797-55-8	Nitrate as N	8.8	1		EPA-300.0
14808-79-8	Sulfate	54	1		EPA-300.0

*g/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-17-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-06

File ID: B042814A.seq-09

Sampled: 04/28/14 10:30

Prepared: 04/28/14 23:30

Analyzed: 04/29/14 02:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2405

Sequence: 1406070

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.2	1		EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	23	1		EPA-300.0

*Handwritten signature and date: 5/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-17-1**

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-07

File ID: B042814A.seq-10

Sampled: 04/28/14 11:10

Prepared: 04/28/14 23:30

Analyzed: 04/29/14 02:37

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2405

Sequence: 1406070

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.8	1		EPA-300.0
14797-55-8	Nitrate as N	0.32	1		EPA-300.0
14808-79-8	Sulfate	27	1		EPA-300.0

*Handwritten signature/initials and date: 5/6/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

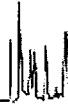
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-19-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-08</u>	File ID: <u>B042814A.seq-16</u>	
Sampled: <u>04/28/14 12:00</u>	Prepared: <u>04/28/14 23:30</u>	Analyzed: <u>04/29/14 04:08</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2405</u>	Sequence: <u>1406070</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC2</u>

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	8.1	1		EPA-300.0
14808-79-8	Sulfate	47	1		EPA-300.0

*Handwritten signature/initials*  
5/30/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-19-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-09

File ID: B042814A.seq-17

Sampled: 04/28/14 12:40

Prepared: 04/28/14 23:30

Analyzed: 04/29/14 04:23

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2405

Sequence: 1406070

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	9.0	1		EPA-300.0
14808-79-8	Sulfate	44	1		EPA-300.0

*Handwritten signature and date: 5/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-26-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-10

File ID: B042814A.seq-18

Sampled: 04/28/14 13:30

Prepared: 04/28/14 23:30

Analyzed: 04/29/14 04:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXD2405

Sequence: 1406070

Calibration: UNASSIGNED

Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	66	1		EPA-300.0
14797-55-8	Nitrate as N	5.9	1		EPA-300.0
14808-79-8	Sulfate	74	1		EPA-300.0

*Handwritten signature*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-26-1**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-11</u>	File ID: <u>B042814A.seq-19</u>	
Sampled: <u>04/28/14 14:10</u>	Prepared: <u>04/28/14 23:30</u>	Analyzed: <u>04/29/14 04:53</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXD2405</u>	Sequence: <u>1406070</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC2</u>

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	7.7	1		EPA-300.0
14808-79-8	Sulfate	110	1		EPA-300.0

*Handwritten signature and date: 5/17/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

EB-6-4/28/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-02</u>	File ID: <u>F050814.seq-14.0000.txt</u>	
Sampled: <u>04/28/14 06:20</u>	Prepared: <u>05/08/14 19:00</u>	Analyzed: <u>05/08/14 22:56</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0933</u>	Sequence: <u>1406501</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-17-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-03

File ID: F050814.seq-15.0000.txt

Sampled: 04/28/14 07:00

Prepared: 05/08/14 19:00

Analyzed: 05/08/14 23:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0933

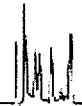
Sequence: 1406501

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	15	1		EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-17-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-04

File ID: F050814.seq-18.0000.txt

Sampled: 04/28/14 07:40

Prepared: 05/08/14 19:00

Analyzed: 05/08/14 23:51

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0933

Sequence: 1406501

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	17	1		EPA-314.0

*Handwritten signature and date: 6/17/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-17-3

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-05

File ID: F050814.seq-19.0000.txt

Sampled: 04/28/14 08:15

Prepared: 05/08/14 19:00

Analyzed: 05/09/14 00:05

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0933

Sequence: 1406501

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	7.6	1		EPA-314.0

*Handwritten signature and date: 6/17/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-17-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-06</u>	File ID: <u>F050814.seq-20.0000.txt</u>	
Sampled: <u>04/28/14 10:30</u>	Prepared: <u>05/08/14 19:00</u>	Analyzed: <u>05/09/14 00:19</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0933</u>	Sequence: <u>1406501</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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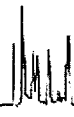
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-17-1
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-07</u>	File ID: <u>F050814.seq-10.0000.txt</u>	
Sampled: <u>04/28/14 11:10</u>	Prepared: <u>05/08/14 19:00</u>	Analyzed: <u>05/08/14 22:01</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0933</u>	Sequence: <u>1406501</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-19-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-08</u>	File ID: <u>F050814.seq-21.0000.txt</u>	
Sampled: <u>04/28/14 12:00</u>	Prepared: <u>05/08/14 19:00</u>	Analyzed: <u>05/09/14 00:33</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0933</u>	Sequence: <u>1406501</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.1	1	J	EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-19-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-09</u>	File ID: <u>F050814.seq-22.0000.txt</u>	
Sampled: <u>04/28/14 12:40</u>	Prepared: <u>05/08/14 19:00</u>	Analyzed: <u>05/09/14 00:47</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0933</u>	Sequence: <u>1406501</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.3	1	J	EPA-314.0

*Handwritten signature and date: 5/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-26-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-10</u>	File ID: <u>F050814.seq-23.0000.txt</u>	
Sampled: <u>04/28/14 13:30</u>	Prepared: <u>05/08/14 19:00</u>	Analyzed: <u>05/09/14 01:01</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0933</u>	Sequence: <u>1406501</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.3	1	J	EPA-314.0

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-26-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-11

File ID: F050814.seq-24.0000.txt

Sampled: 04/28/14 14:10

Prepared: 05/08/14 19:00

Analyzed: 05/09/14 01:14

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0933

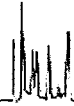
Sequence: 1406501

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

*Handwritten signature and date: JTC/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**METHOD DETECTION AND REPORTING LIMITS**

**SM-2320B**

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

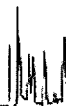
Project: JPL- GW Monitoring Wells

Matrix: Water

Instrument: MET-1

Analyte	MDL	MRL	Units
Bicarbonate	5.00000	5.00000	mg/L
Carbonate	2.50000	2.50000	mg/L
Total Alkalinity as CaCO3	4.10000	4.10000	mg/L

*Handwritten signature/initials*  
6/2/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

EB-6-4/28/14

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-02

File ID: Tiamo042914-046

Sampled: 04/28/14 06:20

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 15:50

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2513

Sequence: 1405898

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	5.6	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	4.6	1		SM-2320B

*Handwritten signature/initials*  
6/12/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-17-5**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-03</u>	File ID: <u>Tiamo042914-047</u>	
Sampled: <u>04/28/14 07:00</u>	Prepared: <u>04/29/14 07:00</u>	Analyzed: <u>04/29/14 15:55</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2513</u>	Sequence: <u>1405898</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

*Handwritten signature and date: 5/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-17-4

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-04

File ID: Tiamo042914-048

Sampled: 04/28/14 07:40

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 16:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2513

Sequence: 1405898

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	170	1		SM-2320B

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-17-3

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-05

File ID: Tiamo042914-053

Sampled: 04/28/14 08:15

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 16:24

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2514

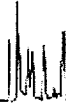
Sequence: 1405898

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

*Handwritten signature and date: 6/2/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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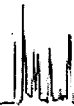
**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-17-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-06</u>	File ID: <u>Tiamo042914-055</u>	
Sampled: <u>04/28/14 10:30</u>	Prepared: <u>04/29/14 07:00</u>	Analyzed: <u>04/29/14 16:36</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2514</u>	Sequence: <u>1405898</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

*[Handwritten signature]*  
6/2/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-17-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-07</u>	File ID: <u>Tiamo042914-056</u>	
Sampled: <u>04/28/14 11:10</u>	Prepared: <u>04/29/14 07:00</u>	Analyzed: <u>04/29/14 16:43</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2514</u>	Sequence: <u>1405898</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

*6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

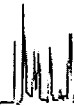
**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-19-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-08</u>	File ID: <u>Tiamo042914-057</u>	
Sampled: <u>04/28/14 12:00</u>	Prepared: <u>04/29/14 07:00</u>	Analyzed: <u>04/29/14 16:50</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2514</u>	Sequence: <u>1405898</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

*97*  
*04/29/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

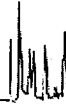
**SM-2320B**

MW-19-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-09</u>	File ID: <u>Tiamo042914-058</u>	
Sampled: <u>04/28/14 12:40</u>	Prepared: <u>04/29/14 07:00</u>	Analyzed: <u>04/29/14 16:56</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2514</u>	Sequence: <u>1405898</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-26-2

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-10

File ID: Tiamo042914-059

Sampled: 04/28/14 13:30

Prepared: 04/29/14 07:00

Analyzed: 04/29/14 17:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2514

Sequence: 1405898

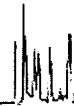
Calibration: UNASSIGNED

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

*Handwritten signature and date: 6/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

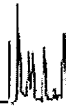
**SM-2320B**

MW-26-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-11</u>	File ID: <u>Tiamo042914-060</u>	
Sampled: <u>04/28/14 14:10</u>	Prepared: <u>04/29/14 07:00</u>	Analyzed: <u>04/29/14 17:10</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2514</u>	Sequence: <u>1405898</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	290	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	240	1		SM-2320B

*Handwritten signature and date: 5/30/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

EB-6-4/28/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-02</u>	File ID: <u>140429 0812 NO2-122</u>	
Sampled: <u>04/28/14 06:20</u>	Prepared: <u>04/29/14 09:00</u>	Analyzed: <u>04/29/14 09:49</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0104</u>	Sequence: <u>1405969</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Handwritten signature and date: 5/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-17-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-03

File ID: 140429 0812 NO2-123

Sampled: 04/28/14 07:00

Prepared: 04/29/14 09:00

Analyzed: 04/29/14 09:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0104

Sequence:

1405969

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

*Handwritten signature and date: 5/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

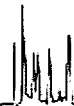
**EPA-353.2**

MW-17-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-04</u>	File ID: <u>140429 0812 NO2-124</u>	
Sampled: <u>04/28/14 07:40</u>	Prepared: <u>04/29/14 09:00</u>	Analyzed: <u>04/29/14 09:49</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0104</u>	Sequence: <u>1405969</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*97/07/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-17-3

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-05

File ID: 140429 0812 NO2-125

Sampled: 04/28/14 08:15

Prepared: 04/29/14 09:00

Analyzed: 04/29/14 09:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0104

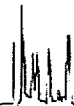
Sequence: 1405969

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

*Handwritten signature and date: 6/12/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-17-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-06</u>	File ID: <u>140429 0812 NO2-128</u>	
Sampled: <u>04/28/14 10:30</u>	Prepared: <u>04/29/14 09:00</u>	Analyzed: <u>04/29/14 09:49</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0104</u>	Sequence: <u>1405969</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Handwritten signature and date: 6/2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-17-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-07

File ID: 140429 0812 NO2-107

Sampled: 04/28/14 11:10

Prepared: 04/29/14 09:00

Analyzed: 04/29/14 09:33

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0104

Sequence: 1405969

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

*Handwritten signature and date: 6/17/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-19-5

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-08

File ID: 140429 0812 NO2-129

Sampled: 04/28/14 12:00

Prepared: 04/29/14 09:00

Analyzed: 04/29/14 09:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0104

Sequence: 1405969

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

*Handwritten signature and date: 5/12/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	---

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-19-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-09</u>	File ID: <u>140429 0812 NO2-130</u>	
Sampled: <u>04/28/14 12:40</u>	Prepared: <u>04/29/14 09:00</u>	Analyzed: <u>04/29/14 09:49</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0104</u>	Sequence: <u>1405969</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

16/17/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 5/30/2014 4:00:56PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-26-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09332</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409332-10</u>	File ID: <u>140429 0812 NO2-115</u>	
Sampled: <u>04/28/14 13:30</u>	Prepared: <u>04/29/14 09:00</u>	Analyzed: <u>04/29/14 09:43</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0104</u>	Sequence: <u>1405969</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.91	1		EPA-353.2

*Handwritten signature and date: 5/27/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 5/30/2014 4:00:56PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-26-1

Laboratory: BC Laboratories

SDG: 14-09332

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409332-11

File ID: 140429 0812 NO2-116

Sampled: 04/28/14 14:10

Prepared: 04/29/14 09:00

Analyzed: 04/29/14 09:43

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0104

Sequence: 1405969

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.71	1		EPA-353.2

*Handwritten signature and date: 5/12/14*

LDC #: 31915C6  
 SDG #: 14-09332  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6-11-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), 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.	Technical holding times	A	Sampling dates: 4-28-14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	SW	EB = 1

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

Validated Samples:  
 all water

1	EB-6-4/28/14	11	MW-17-3DUP	21		31	
2	MW-17-5	12	MW-17-1MS	22		32	
3	MW-17-4	13	MW-17-1MSD	23		33	
4	MW-17-3	14	MW-17-1DUP	24		34	
5	MW-17-2	15	MW-26-1DUP	25		35	
6	MW-17-1	16		26		36	
7	MW-19-5	17		27		37	
8	MW-19-4	18		28		38	
9	MW-26-2	19		29		39	PBW1
10	MW-26-1	20		30		40	PBW2

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



LDC #: 31915C6

# VALIDATION FINDINGS WORKSHEET

## Field Blanks

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

METHOD: Inorganics, EPA Method See cover

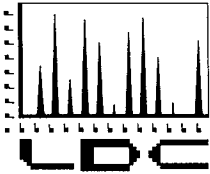
- N N/A Were field blanks identified in this SDG?  
 N N/A Were target analytes detected in the field blanks?

Sample: 1 Field Blank / Trip Blank / Rinsate (circle one) **EB**

Analyte	Concentration Units ( )
pH	6.62 (pH units)
Cl	0.19 (mg/L)
Bicarbonate	5.6 ( )
Total Alkalinity	4.6 ( )

Sample: \_\_\_\_\_ Field Blank / Trip Blank / Rinsate (circle one)

Analyte	Concentration Units ( )



# 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 27, 2014

SUBJECT: NASA JPL, 2Q2014, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on June 9, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project #31942:**

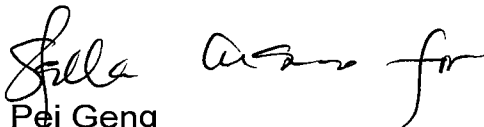
<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
478825, 478951, 479398, 479634, 479635	1,4-Dioxane, N-Nitrosodimethylamine

The data validation was performed under EPA Level III 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

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

Sincerely,

  
Pei Geng  
Project Manager/Senior Chemist





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

**Project/Site Name:** NASA JPL, 2Q2014

**Collection Date:** April 24, 2014

**LDC Report Date:** June 25, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** EPA Level III

**Laboratory:** Eurofins

**Sample Delivery Group (SDG):** 478825

**Sample Identification**

MW-24-1

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 522 for 1,4-Dioxane.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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 .

## **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 within QC limits.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

## **VI. Surrogate Spikes**

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

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

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**  
**1,4-Dioxane - Data Qualification Summary - SDG 478825**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 478825**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 478825**

No Sample Data Qualified in this SDG

LDC #: 31942A2c  
 SDG #: 478825  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/23/14  
 Page: 1 of 1  
 Reviewer: KA  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,4-Dioxane(EPA Method 522)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/24/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	MSD m r <sup>2</sup>
IV.	Continuing calibration/ <del>ICX</del>	A	2 Rec (lowest pt) = 50-150 2 Rec (med + high level) = 70-130
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	Client spec.
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: Water

1	MW-24-1	11		21		31	767552-MB
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 24, 2014  
**LDC Report Date:** June 24, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** EPA Level III  
**Laboratory:** Eurofins  
**Sample Delivery Group (SDG):** 478825

**Sample Identification**

MW-24-1

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA Method 521 for N-Nitrosodimethylamine.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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 .

## **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 within QC limits.

Percent differences of the second source calibration were less than or equal to 30.0%.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

## **VI. Surrogate Spikes**

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

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

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVI. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 478825**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG  
478825**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 478825**

No Sample Data Qualified in this SDG

LDC #: 31942A2d  
 SDG #: 478825  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/23/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 521)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/24/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	A	r <sup>2</sup>
IV.	Continuing calibration/ICV	A	LCV 2 Rec=70-130? CV 2 Rec=50-150? (lowest CV)
V.	Blanks	A	
VI.	Surrogate spikes	A	2 Rec=70-130? (med. + high level)
VII.	Matrix spike/Matrix spike duplicates	N	Client spec.
VIII.	Laboratory control samples	A	LCV
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: Water

1	MW-24-1	11	21	31	7 67462-MB
2		12	22	32	
3		13	23	33	
4		14	24	34	
5		15	25	35	
6		16	26	36	
7		17	27	37	
8		18	28	38	
9		19	29	39	
10		20	30	40	



Eaton Analytical

750 Royal Oaks Drive, Suite 100  
Monrovia, California 91016-3629  
Tel: (626) 386-1100  
Fax: (626) 386-1101  
1 800 566 LABS (1 800 566 5227)

Laboratory Data  
Report: 478825

**Tidewater, Inc.**  
David Conner  
Environmental Restoration and Infrastructure  
4800 Oak Grove Drive  
M/S 180-801  
Pasadena, 91109

Samples Received on:  
04/25/2014

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
<b>MW-24-1 (201404260031)</b>						<b>Sampled on 04/24/2014 1345</b>		
<b>EPA 522 - 1,4-Dioxane</b>								
4/29/2014	05/06/2014	1:16 767586	(EPA 522)	1,4-Dioxane	ND	ug/L	1	1
4/29/2014	05/06/2014	1:16 767586	(EPA 522)	Dioxane-d8	80	%		1
<b>EPA 521 - Nitrosamines by GCMS</b>								
5/2/2014	05/07/2014	03:49 767462	(EPA 521)	N-Nitroso-dimethylamine (NDMA)	ND	ng/L	2	1
5/2/2014	05/07/2014	03:49 767462	(EPA 521)	NDMA-D6	98	%		1

Rounding on totals after summation.  
(c) - indicates calculated results

*6/26/14*

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

**Project/Site Name:** NASA JPL, 2Q2014

**Collection Date:** April 28, 2014

**LDC Report Date:** June 25, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** EPA Level III

**Laboratory:** Eurofins

**Sample Delivery Group (SDG):** 478951

**Sample Identification**

MW-17-4

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 522 for 1,4-Dioxane.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

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- NJ Presumptive evidence of presence of the compound at an estimated quantity.
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- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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 .

## **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 within QC limits.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

## **VI. Surrogate Spikes**

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

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

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



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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

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

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**  
**1,4-Dioxane - Data Qualification Summary - SDG 478951**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 478951**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 478951**

No Sample Data Qualified in this SDG

LDC #: 31942B2c  
 SDG #: 478951  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/23/14  
 Page: 1 of 1  
 Reviewer: SA  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,4-Dioxane(EPA Method 522)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/28/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	r2
IV.	Continuing calibration/ <del>DC</del>	A	2 Rec (lowest) = 50-150? 2 Rec (med) + high level (cc) = 70-130?
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	Client spec.
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: *Water*

1	MW-17-4	11		21		31	7-67586-MB 552 n
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 28, 2014  
**LDC Report Date:** June 26, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** EPA Level III  
**Laboratory:** Eurofins  
**Sample Delivery Group (SDG):** 478951

**Sample Identification**

MW-17-4

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA Method 521 for N-Nitrosodimethylamine.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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 .

## **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 within QC limits.

Percent differences of the second source calibration were less than or equal to 30.0%.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

## **VI. Surrogate Spikes**

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

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

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVI. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**  
**N-Nitrosodimethylamine - Data Qualification Summary - SDG 478951**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 478951**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 478951**

No Sample Data Qualified in this SDG



LDC #: 31942B2d  
 SDG #: 478951  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 4/23/14  
 Page: 1 of 1  
 Reviewer: KA  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 521)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/28/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	A	r <sup>2</sup>
IV.	Continuing calibration/ICV	A	ICV? Rec = 70-130? CW? Rec = 50-150?
V.	Blanks	A	(lowest pt. cv)
VI.	Surrogate spikes	A	CCV? Rec = 70-130?
VII.	Matrix spike/Matrix spike duplicates	N	Client spec. (med + high level cv)
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: WNAW

1	MW-17-4	11		21		31	767462-MB
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



Eaton Analytical

750 Royal Oaks Drive, Suite 100  
Monrovia, California 91016-3629  
Tel: (626) 386-1100  
Fax: (626) 386-1101  
1 800 566 LABS (1 800 566 5227)

Laboratory Data  
Report: 478951

Tidewater, Inc.  
David Conner  
Environmental Restoration and Infrastructure  
4800 Oak Grove Drive  
M/S 180-801  
Pasadena, 91109

Samples Received on:  
04/28/2014

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
<b>MW-17-4 (201404280267)</b>						<b>Sampled on 04/28/2014 0740</b>		
<b>EPA 522 - 1,4-Dioxane</b>								
4/29/2014	05/06/2014	3:16 767586	(EPA 522)	1,4-Dioxane	ND	ug/L	1	1
4/29/2014	05/06/2014	3:16 767586	(EPA 522)	Dioxane-d8	81	%		1
<b>EPA 521 - Nitrosamines by GCMS</b>								
5/2/2014	05/07/2014	05:40 767462	(EPA 521)	N-Nitroso-dimethylamine (NDMA)	ND	ng/L	2	1
5/2/2014	05/07/2014	05:40 767462	(EPA 521)	NDMA-D6	88	%		1

Rounding on totals after summation.  
(c) - indicates calculated results

6/26/14

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

**Project/Site Name:** NASA JPL, 2Q2014

**Collection Date:** April 30, 2014

**LDC Report Date:** June 25, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** EPA Level III

**Laboratory:** Eurofins

**Sample Delivery Group (SDG):** 479398

**Sample Identification**

MW-4-1

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 522 for 1,4-Dioxane.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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 .

## **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 within QC limits.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

## **VI. Surrogate Spikes**

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

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

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**

**1,4-Dioxane - Data Qualification Summary - SDG 479398**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 479398**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 479398**

No Sample Data Qualified in this SDG

LDC #: 31942C2c  
 SDG #: 479398  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/23/14  
 Page: 1 of 1  
 Reviewer: Rn  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,4-Dioxane (EPA Method 522)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/30/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	r2
IV.	Continuing calibration/ <del>10X</del>	A	70 rec (lowest pt Ccv) = 50-150 2 Rec (med. + high level Ccv) = 70-130?
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	Client spec.
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: Water

1	MW-4-1	11		21		31	768651-M.B
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 30, 2014  
**LDC Report Date:** June 26, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** EPA Level III  
**Laboratory:** Eurofins  
**Sample Delivery Group (SDG):** 479398

**Sample Identification**

MW-4-1

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA Method 521 for N-Nitrosodimethylamine.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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 .

## **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 within QC limits.

Percent differences of the second source calibration were less than or equal to 30.0%.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

## **VI. Surrogate Spikes**

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

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

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVI. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 479398**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG  
479398**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 479398**

No Sample Data Qualified in this SDG

LDC #: 31942C2d  
 SDG #: 479398  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/23/14  
 Page: 1 of 1  
 Reviewer: KA  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 521)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/30/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	A	r2
IV.	Continuing calibration/ICV	A	ICV % Rec = 70-130? CCV % Rec (lowest pt = 50-150? CCV)
V.	Blanks	A	
VI.	Surrogate spikes	A	CCV % Rec (med high level CCV)
VII.	Matrix spike/Matrix spike duplicates	N	Client spec
VIII.	Laboratory control samples	A	LCS = 70-130?
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A <del>SW</del>	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

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

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: Water

1	MW-4-1	11		21		31	768817-MB
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



Eaton Analytical

750 Royal Oaks Drive, Suite 100  
Monrovia, California 91016-3629  
Tel: (626) 386-1100  
Fax: (626) 386-1101  
1 800 566 LABS (1 800 566 5227)

Laboratory Data  
Report: 479398

Tidewater, Inc.  
David Conner  
Environmental Restoration and Infrastructure  
4800 Oak Grove Drive  
M/S 180-801  
Pasadena, 91109

Samples Received on:  
04/30/2014

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
<b>MW-4-1 (201405010029)</b>						<b>Sampled on 04/30/2014 1320</b>		
<b>EPA 522 - 1,4-Dioxane</b>								
5/5/2014	05/08/2014	19:26 768651	(EPA 522)	1,4-Dioxane	ND	ug/L	1	1
5/5/2014	05/08/2014	19:26 768651	(EPA 522)	Dioxane-d8	102	%		1
<b>EPA 521 - Nitrosamines by GCMS</b>								
5/6/2014	05/11/2014	12:51 768817	(EPA 521)	N-Nitroso-dimethylamine (NDMA)	ND	ng/L	2	1
5/6/2014	05/11/2014	12:51 768817	(EPA 521)	NDMA-D6	84	%		1

Rounding on totals after summation.  
(c) - indicates calculated results

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

**Project/Site Name:** NASA JPL, 2Q2014

**Collection Date:** May 1, 2014

**LDC Report Date:** June 25, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** EPA Level III

**Laboratory:** Eurofins

**Sample Delivery Group (SDG):** 479634

**Sample Identification**

MW-16



## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 522 for 1,4-Dioxane.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
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- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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 .

## **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 within QC limits.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

## **VI. Surrogate Spikes**

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

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

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**

**1,4-Dioxane - Data Qualification Summary - SDG 479634**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 479634**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 479634**

No Sample Data Qualified in this SDG

LDC #: 31942D2c  
 SDG #: 479634  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/23/14  
 Page: 1 of 1  
 Reviewer: BR  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,4-Dioxane(EPA Method 522)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/1/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	R
IV.	Continuing calibration <del>100%</del>	A	2 Rec (low est p+) = 50-150? 2 Rec (med + high level CV = 70-130?)
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	Client spec.
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: Water

1	MW-16	11		21		31	<sup>6</sup> 7,8651-MS
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 1, 2014  
**LDC Report Date:** June 26, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** EPA Level III  
**Laboratory:** Eurofins  
**Sample Delivery Group (SDG):** 479634

**Sample Identification**

MW-16

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA Method 521 for N-Nitrosodimethylamine.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. GC/MS Instrument Performance Check

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

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

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 .

## 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 within QC limits.

Percent differences of the second source calibration were less than or equal to 30.0%.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

## VI. Surrogate Spikes

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

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
MW-16	N-Nitrosodimethylamine-D6	57 (70-130)	N-Nitrosodimethylamine	J (all detects) UJ (all non-detects)	A

## 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. Laboratory Control Samples (LCS)**

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

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

Not applicable.

### **X. Internal Standards**

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

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

### **XIII. System Performance**

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment**

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

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

### **XVI. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**

**N-Nitrosodimethylamine - Data Qualification Summary - SDG 479634**

SDG	Sample	Compound	Flag	A or P	Reason
479634	MW-16	N-Nitrosodimethylamine	J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R)

**NASA JPL, 2Q2014**

**N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 479634**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 479634**

No Sample Data Qualified in this SDG

LDC #: 31942D2d  
 SDG #: 479634  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/23/14  
 Page: of 1  
 Reviewer: BR  
 2nd Reviewer: A

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 521)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/1/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	A	r2
IV.	Continuing calibration/ICV	A	1W 2 Rec = 70-1307 CW 2 Rec = 50-1507
V.	Blanks	R	(lowest pt. - cv)
VI.	Surrogate spikes	SW	CV 2 Rec = 70-1307
VII.	Matrix spike/Matrix spike duplicates	N	client spec. (med. + high
VIII.	Laboratory control samples	A	LCS level cv)
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: Water

1	MW-16	11		21		31	770286-MB
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	





Eaton Analytical

750 Royal Oaks Drive, Suite 100  
Monrovia, California 91016-3629  
Tel: (626) 386-1100  
Fax: (626) 386-1101  
1 800 566 LABS (1 800 566 5227)

Laboratory Data  
Report: 479634

**Tidewater, Inc.**  
David Conner  
Environmental Restoration and Infrastructure  
4800 Oak Grove Drive  
M/S 180-801  
Pasadena, 91109

Samples Received on:  
05/01/2014

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
<b>MW-16 (201405010736)</b>						<b>Sampled on 05/01/2014 1055</b>		
<b>EPA 522 - 1,4-Dioxane</b>								
5/5/2014	05/08/2014	21:26 768651	(EPA 522)	1,4-Dioxane	ND	ug/L	1	1
5/5/2014	05/08/2014	21:26 768651	(EPA 522)	Dioxane-d8	102	%		1
<b>EPA 521 - Nitrosamines by GCMS</b>								
5/9/2014	05/16/2014	00:38 770286	(EPA 521)	N-Nitroso-dimethylamine (NDMA)	ND (ss) UJ	ng/L	2	1
5/9/2014	05/16/2014	00:38 770286	(EPA 521)	NDMA-D6	57	%		1

Rounding on totals after summation.  
(c) - indicates calculated results

6/26/14 [Signature]

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

**Project/Site Name:** NASA JPL, 2Q2014

**Collection Date:** May 1, 2014

**LDC Report Date:** June 25, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** EPA Level III

**Laboratory:** Eurofins

**Sample Delivery Group (SDG):** 479635

**Sample Identification**

MW-13

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 522 for 1,4-Dioxane.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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 .

## **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 within QC limits.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

## **VI. Surrogate Spikes**

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

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

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



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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

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

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVII. Field Blanks**

No field blanks were identified in this SDG.

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

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

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

Not applicable.

### **X. Internal Standards**

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

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

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

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

### **XVII. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**  
**1,4-Dioxane - Data Qualification Summary - SDG 479635**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 479635**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 479635**

No Sample Data Qualified in this SDG

LDC #: 31942E2c  
 SDG #: 479635  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/23/14  
 Page: 1 of 1  
 Reviewer: SB  
 2nd Reviewer: SB

**METHOD:** GC/MS 1,4-Dioxane(EPA Method 522)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/1/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	r <sup>2</sup>
IV.	Continuing calibration/ <del>SW</del>	A	% Rec (lowest pt - CCV) = 50 - 150% 20 Rec / med + high level
V.	Blanks	A	
VI.	Surrogate spikes	A	CCV
VII.	Matrix spike/Matrix spike duplicates	N	Client spec. = 70 - 130%
VIII.	Laboratory control samples	A	LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

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

Validated Samples: Water

1	MW-13	11		21		31	76 8651-mB
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 1, 2014  
**LDC Report Date:** June 26, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** EPA Level III  
**Laboratory:** Eurofins  
**Sample Delivery Group (SDG):** 479635

**Sample Identification**

MW-13  
MW-13MS  
MW-13MSD

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per a modification of EPA Method 521 for N-Nitrosodimethylamine.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

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

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

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

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 .

## **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 within QC limits.

Percent differences of the second source calibration were less than or equal to 30.0%.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

## **VI. Surrogate Spikes**

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

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

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

## **XVI. Field Blanks**

No field blanks were identified in this SDG.



**NASA JPL, 2Q2014**  
**N-Nitrosodimethylamine - Data Qualification Summary - SDG 479635**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 479635**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 479635**

No Sample Data Qualified in this SDG

LDC #: 31942E2d  
 SDG #: 479635  
 Laboratory: Eurofins

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6/23/14  
 Page: 1 of 1  
 Reviewer: SR  
 2nd Reviewer: Q

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 521)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/1/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	A	r <sup>2</sup>
IV.	Continuing calibration/ICV	A	ICV 2 Rec = 70-130? CCV 2 Rec (lowest p <sub>2</sub> )
V.	Blanks	A	= 50-150? CCV
VI.	Surrogate spikes	A	CCV 2 Rec (med + high level CCV)
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS = 70-130?
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	<del>N</del>	

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

Validated Samples: Water

1	MW-13	11		21		31	770286-MB
2	#1MS	12		22		32	
3	#1MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



Eaton Analytical

750 Royal Oaks Drive, Suite 100  
Monrovia, California 91016-3629  
Tel: (626) 386-1100  
Fax: (626) 386-1101  
1 800 566 LABS (1 800 566 5227)

Laboratory Data  
Report: 479635

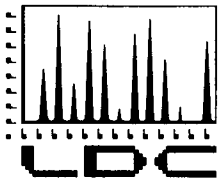
**Tidewater, Inc.**  
David Conner  
Environmental Restoration and Infrastructure  
4800 Oak Grove Drive  
M/S 180-801  
Pasadena, 91109

Samples Received on:  
05/01/2014

Prepared	Analyzed	QC Ref #	Method	Analyte	Result	Units	MRL	Dilution
<b>MW-13 (201405010737)</b>						<b>Sampled on 05/01/2014 0812</b>		
<b>EPA 522 - 1,4-Dioxane</b>								
5/5/2014	05/08/2014	21:50 768651	(EPA 522)	1,4-Dioxane	1.0	ug/L	1	1
5/5/2014	05/08/2014	21:50 768651	(EPA 522)	Dioxane-d8	103	%		1
<b>EPA 521 - Nitrosamines by GCMS</b>								
5/9/2014	05/16/2014	01:34 770286	(EPA 521)	N-Nitroso-dimethylamine (NDMA)	ND	ng/L	2	1
5/9/2014	05/16/2014	01:34 770286	(EPA 521)	NDMA-D6	88	%		1

Rounding on totals after summation.  
(c) - indicates calculated results

6/26/14



# 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 24, 2014

SUBJECT: NASA JPL, 2Q2014, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on June 11, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project #31953:**

**SDG #**

**Fraction**

14-09554, 14-09680, Volatiles, Metals, Wet Chemistry  
14-09784

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



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

**Project/Site Name:** NASA JPL, 2Q2014

**Collection Date:** April 30, 2014

**LDC Report Date:** June 19, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** EPA Level III & IV

**Laboratory:** BC Laboratories, Inc.

**Sample Delivery Group (SDG):** 14-09554

**Sample Identification**

TB-8-4/30/14  
SB-3-4/30/14  
EB-8-4/30/14  
MW-23-5\*\*  
MW-23-4  
MW-23-3  
MW-23-2  
MW-23-1  
MW-4-5  
MW-4-4  
MW-4-3\*\*  
MW-4-2  
MW-4-1  
MW-4-4MS  
MW-4-4MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## 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
5/2/14	Bromomethane	45.0	All samples in SDG 14-09554	J (all detects)	P
	Dibromochloromethane	32.3		UJ (all non-detects)	
				J (all detects)	
				UJ (all non-detects)	

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

## V. Blanks

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



## **VI. Surrogate Spikes**

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

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

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria 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.

## **XII. Compound Quantitation**

All compound quantitations were within validation criteria 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. Tentatively Identified Compounds (TICs)**

All tentatively identified compounds were within validation criteria 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. System Performance**

The system performance was 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.

## XV. Overall Assessment of Data

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

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

## XVII. Field Blanks

Sample TB-8-4/30/14 was identified as a trip blank. No volatile contaminants were found.

Sample EB-8-4/30/14 was identified as an equipment blank. No volatile contaminants were found.

Sample SB-3-4/30/14 was identified as a source blank. No volatile contaminants were found with the following exceptions:

Blank ID	Compound	Concentration (ug/L)
SB-3-4/30/14	o-Xylene	0.090

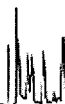
**NASA JPL, 2Q2014**  
**Volatiles - Data Qualification Summary - SDG 14-09554**

SDG	Sample	Compound	Flag	A or P	Reason
14-09554	TB-8-4/30/14 SB-3-4/30/14 EB-8-4/30/14 MW-23-5** MW-23-4 MW-23-3 MW-23-2 MW-23-1 MW-4-5 MW-4-4 MW-4-3** MW-4-2 MW-4-1	Bromomethane  Dibromochloromethane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL, 2Q2014**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-09554**

No Sample Data Qualified in this SDG





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-8-4/30/14

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-01 File ID: 02MAY13.D  
Sampled: 04/30/14 06:00 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 13:02  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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

jvg 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-8-4/30/14

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-01 File ID: 02MAY13.D  
Sampled: 04/30/14 06:00 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 13:02  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	10.450	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9800	99.8	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0300	90.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	249908	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	80479	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	326359	7.51	312468	7.52	

JVG 6/27/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

TB-8-4/30/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-01</u>	File ID:	<u>02MAY13.D</u>		
Sampled:	<u>04/30/14 06:00</u>	Prepared:	<u>05/02/14 07:00</u>	Analyzed:	<u>05/02/14 13:02</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

JVG 6/23/14


 Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

 Reported: 6/9/2014 9:54:35AM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**
**EPA-524.2**

SB-3-4/30/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-02</u>
Sampled:	<u>04/30/14 06:10</u>	File ID:	<u>02MAY14.D</u>
Solids:		Prepared:	<u>05/02/14 07:00</u>
Batch:	<u>BXE0192</u>	Analyzed:	<u>05/02/14 13:25</u>
Sequence:	<u>1406005</u>	Initial/Final:	<u>25 ml / 25 ml</u>
Calibration:	<u>1404015</u>	Preparation:	<u>EPA 5030 Water MS</u>
Instrument:	<u>MS-V5</u>		

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 UJ
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

JVG 6/23/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

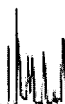
**EPA-524.2**

**SB-3-4/30/14**

Laboratory: BC Laboratories SDG: 14-09554  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409554-02 File ID: 02MAY14.D  
 Sampled: 04/30/14 06:10 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 13:25  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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

*jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

SB-3-4/30/14

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-02 File ID: 02MAY14.D  
Sampled: 04/30/14 06:10 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 13:25  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	0.090	J
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	10.930	109	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.070	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2300	92.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	240655	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	77617	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	309556	7.52	312468	7.52	

JCS 6/23/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:54:35AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

SB-3-4/30/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-02</u>	File ID:	<u>02MAY14.D</u>		
Sampled:	<u>04/30/14 06:10</u>	Prepared:	<u>05/02/14 07:00</u>	Analyzed:	<u>05/02/14 13:25</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JUG 6/23/14*


 Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

 Reported: 6/9/2014 9:54:35AM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

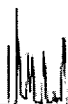
**ORGANIC ANALYSIS DATA SHEET**
**EPA-524.2**

EB-8-4/30/14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-03</u>
Sampled:	<u>04/30/14 06:15</u>	File ID:	<u>02MAY15.D</u>
Solids:		Prepared:	<u>05/02/14 07:00</u>
		Analyzed:	<u>05/02/14 13:47</u>
		Preparation:	<u>EPA 5030 Water MS</u>
		Initial/Final:	<u>25 ml / 25 ml</u>
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

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 UJ
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

JNG 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

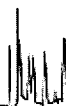
EPA-524.2

EB-8-4/30/14

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-03 File ID: 02MAY15.D  
Sampled: 04/30/14 06:15 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 13:47  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	1,1,1,2-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

JV9 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

EB-8-4/30/14

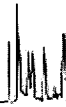
Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-03 File ID: 02MAY15.D  
Sampled: 04/30/14 06:15 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 13:47  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	11.290	113	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.170	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0100	90.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	237076	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	78296	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	310730	7.52	312468	7.52	

avg 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

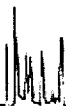
**EPA-524.2**

**EB-8-4/30/14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-03</u>	File ID:	<u>02MAY15.D</u>		
Sampled:	<u>04/30/14 06:15</u>	Prepared:	<u>05/02/14 07:00</u>	Analyzed:	<u>05/02/14 13:47</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*jug 6/23/14*


 Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

 Reported: 6/9/2014 9:54:35AM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**
**EPA-524.2**

MW-23-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-04</u>
Sampled:	<u>04/30/14 06:40</u>	Prepared:	<u>05/02/14 07:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>
		File ID:	<u>02MAY16.D</u>
		Analyzed:	<u>05/02/14 14:10</u>
		Initial/Final:	<u>25 ml / 25 ml</u>

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 UJ
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

JVG 6/23/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**MW-23-5**

Laboratory: BC Laboratories SDG: 14-09554  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409554-04 File ID: 02MAY16.D  
 Sampled: 04/30/14 06:40 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 14:10  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	0.26	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

*jug 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-23-5

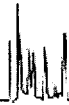
Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-04 File ID: 02MAY16.D  
Sampled: 04/30/14 06:40 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 14:10  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	11.120	111	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.140	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0500	90.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	237588	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	77698	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	307775	7.51	312468	7.52	

JVG 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

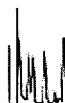
**MW-23-5**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-04</u>	File ID:	<u>02MAY16.D</u>		
Sampled:	<u>04/30/14 06:40</u>	Prepared:	<u>05/02/14 07:00</u>	Analyzed:	<u>05/02/14 14:10</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Jug 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

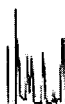
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-23-4

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-05 File ID: 02MAY17.D  
Sampled: 04/30/14 07:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 14:32  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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

JVS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-23-4

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-05 File ID: 02MAY17.D  
Sampled: 04/30/14 07:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 14:32  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	11.010	110	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.100	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9000	89.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	232894	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	75762	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	305314	7.51	312468	7.52	

JVS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

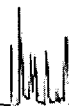
**EPA-524.2**

MW-23-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-05</u>
Sampled:	<u>04/30/14 07:20</u>	Prepared:	<u>05/02/14 07:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

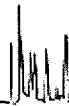
MW-23-3

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-06 File ID: 02MAY18.D  
Sampled: 04/30/14 07:50 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 14:55  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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 UJ
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

5/5 6/23/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-23-3

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-06 File ID: 02MAY18.D  
Sampled: 04/30/14 07:50 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 14:55  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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

*JWS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-23-3

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-06 File ID: 02MAY18.D  
Sampled: 04/30/14 07:50 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 14:55  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	11.610	116	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9000	99.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0600	90.6	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	226273	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	75678	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	301660	7.51	312468	7.52	

JCS 6/22/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

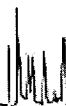
**EPA-524.2**

**MW-23-3**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-06</u>
Sampled:	<u>04/30/14 07:50</u>	Prepared:	<u>05/02/14 07:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-23-2

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-07 File ID: 02MAY19.D  
Sampled: 04/30/14 08:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 15:18  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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 <i>US</i>
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 <i>US</i>
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	0.17	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

*JCS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

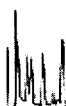
EPA-524.2

MW-23-2

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-07 File ID: 02MAY19.D  
Sampled: 04/30/14 08:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 15:18  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	0.41	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

jvs 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-23-2

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-07 File ID: 02MAY19.D  
Sampled: 04/30/14 08:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 15:18  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	11.840	118	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.340	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2000	92.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	224992	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	75667	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	297497	7.52	312468	7.52	

JVS 6/27/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:54:35AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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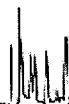
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-23-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-07</u>	File ID:	<u>02MAY19.D</u>		
Sampled:	<u>04/30/14 08:20</u>	Prepared:	<u>05/02/14 07:00</u>	Analyzed:	<u>05/02/14 15:18</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JVB 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

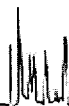
MW-23-1

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-08 File ID: 02MAY20.D  
Sampled: 04/30/14 08:50 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 15:41  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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 <i>WJ</i>
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	0.40	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 <i>WJ</i>
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

*WJ 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

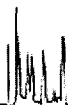
EPA-524.2

MW-23-1

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-08 File ID: 02MAY20.D  
Sampled: 04/30/14 08:50 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 15:41  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	2.1	
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

JG 6/9/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-23-1

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-08 File ID: 02MAY20.D  
Sampled: 04/30/14 08:50 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 15:41  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	11.370	114	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9700	99.7	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9900	89.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	231108	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	73271	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	298407	7.51	312468	7.52	

jrg 6/27/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:54:35AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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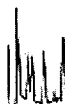
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**MW-23-1**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-08</u>
Sampled:	<u>04/30/14 08:50</u>	Prepared:	<u>05/02/14 07:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JVG 6/27/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

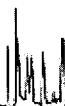
EPA-524.2

MW-4-5

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-09 File ID: 02MAY21.D  
Sampled: 04/30/14 09:40 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 16:03  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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 UJ
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

Jug 6/22/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

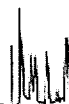
EPA-524.2

MW-4-5

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-09 File ID: 02MAY21.D  
Sampled: 04/30/14 09:40 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 16:03  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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

jug 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-4-5

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-09 File ID: 02MAY21.D  
Sampled: 04/30/14 09:40 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 16:03  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	11.510	115	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.220	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.8400	88.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	223572	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	75208	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	293449	7.52	312468	7.52	

Jvg 6/23/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:54:35AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-4-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-09</u>	File ID:	<u>02MAY21.D</u>		
Sampled:	<u>04/30/14 09:40</u>	Prepared:	<u>05/02/14 07:00</u>	Analyzed:	<u>05/02/14 16:03</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

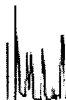
MW-4-4

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-10 File ID: 02MAY07.D  
Sampled: 04/30/14 10:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 10:46  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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 <i>US</i>
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 <i>US</i>
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

*JS 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

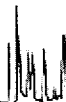
EPA-524.2

MW-4-4

Laboratory: BC Laboratories      SDG: 14-09554  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409554-10      File ID: 02MAY07.D  
Sampled: 04/30/14 10:20      Prepared: 05/02/14 07:00      Analyzed: 05/02/14 10:46  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXE0192      Sequence: 1406005      Calibration: 1404015      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	1,1,1,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.13	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

JVQ 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-4-4

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-10 File ID: 02MAY07.D  
Sampled: 04/30/14 10:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 10:46  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	10.550	106	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9500	99.5	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.7200	87.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	230093	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	72248	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	298913	7.52	312468	7.52	

Jvg 6/22/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:54:35AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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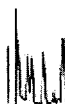
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-4-4
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Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-10</u>
Sampled:	<u>04/30/14 10:20</u>	Prepared:	<u>05/02/14 07:00</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JVG 6/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-4-3

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-11 File ID: 02MAY22.D  
Sampled: 04/30/14 10:55 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 16:26  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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 WJ
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 WJ
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

JVS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

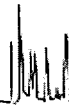
**EPA-524.2**

**MW-4-3**

Laboratory: BC Laboratories SDG: 14-09554  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409554-11 File ID: 02MAY22.D  
 Sampled: 04/30/14 10:55 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 16:26  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-4-3

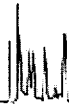
Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-11 File ID: 02MAY22.D  
Sampled: 04/30/14 10:55 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 16:26  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	10.910	109	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.220	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.6400	86.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	225889	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	72632	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	285975	7.52	312468	7.52	

JVD 6/27/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-4-3

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-11</u>	File ID:	<u>02MAY22.D</u>		
Sampled:	<u>04/30/14 10:55</u>	Prepared:	<u>05/02/14 07:00</u>	Analyzed:	<u>05/02/14 16:26</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Jvg 6/23/14*







Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

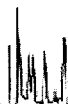
**EPA-524.2**

MW-4-2

Laboratory: BC Laboratories SDG: 14-09554  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409554-12 File ID: 02MAY23.D  
 Sampled: 04/30/14 11:30 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 16:49  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	1,1,1,2-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	0.76	
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

*inv 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-4-2

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-12 File ID: 02MAY23.D  
Sampled: 04/30/14 11:30 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 16:49  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 Instrument: MS-V5

Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Lists surrogate compounds and their recovery percentages.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Lists internal standards and their retention times.

JVG 6/23/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:54:35AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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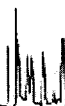
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-4-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-12</u>	File ID:	<u>02MAY23.D</u>		
Sampled:	<u>04/30/14 11:30</u>	Prepared:	<u>05/02/14 07:00</u>	Analyzed:	<u>05/02/14 16:49</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Jug 6/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-4-1

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-13 File ID: 02MAY24.D  
Sampled: 04/30/14 13:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 17:11  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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 WJ
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 WJ
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

JWS 6/22/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-4-1

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-13 File ID: 02MAY24.D  
Sampled: 04/30/14 13:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 17:11  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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

jug 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:54:35AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-4-1

Laboratory: BC Laboratories SDG: 14-09554  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409554-13 File ID: 02MAY24.D  
Sampled: 04/30/14 13:20 Prepared: 05/02/14 07:00 Analyzed: 05/02/14 17:11  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0192 Sequence: 1406005 Calibration: 1404015 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	11.100	111	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.040	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0100	90.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	226405	6.73	234472	6.73	
Chlorobenzene-d5 (IS)	72737	9.73	80769	9.73	
1,4-Difluorobenzene (IS)	294644	7.51	312468	7.52	

JVS 6/23/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:54:35AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**MW-4-1**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09554</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409554-13</u>	File ID:	<u>02MAY24.D</u>		
Sampled:	<u>04/30/14 13:20</u>	Prepared:	<u>05/02/14 07:00</u>	Analyzed:	<u>05/02/14 17:11</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0192</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JUG 6/23/14*

LDC #: 31953A1

## VALIDATION COMPLETENESS WORKSHEET

Date: 6/16/14

SDG #: 14-09554

Level III/IV

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: JB

2nd Reviewer: JLB

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.	Technical holding times	A	Sampling dates: 4/30/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 20% ✓
IV.	Continuing calibration/ICV	SW	ICV/CCV ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A-N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	JB = 1 SB = 2 EB = 3

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

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

Wider						
1	TB-8-4/30/14	11	MW-4-3**	21		31 BXE 0192-BLK
2	SB-3-4/30/14	12	MW-4-2	22		32
3	EB-8-4/30/14	13	MW-4-1	23		33
4	MW-23-5**	14	MW-4-4MS	24		34
5	MW-23-4	15	MW-4-4MSD	25		35
6	MW-23-3	16		26		36
7	MW-23-2	17		27		37
8	MW-23-1	18		28		38
9	MW-4-5	19		29		39
10	MW-4-4	20		30		40



**Method: Volatiles (EPA Method 524.2)**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) < 20%?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/	/		
Were all percent differences (%D) < 30%?		/		
<b>V. Blanks</b>				
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.		/		
<b>VI. Surrogate spikes</b>				
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?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
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?	/			
<b>VIII. Laboratory control samples</b>				
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?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
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?	/			
<b>XI. Target compound identification</b>				
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?	/			
<b>XII. Compound quantitation/RLs</b>				
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?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
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)?			/	
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVII. Field blanks</b>				
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 chloride	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.



**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

Compound	Concentration Units <u>ug/L</u>
<u>SSS</u>	<u>0.090</u>

Sample: \_\_\_\_\_ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ( )

Sample: \_\_\_\_\_ Field Blank / Trip Blank / Rinsate (circle one)

Compound	Concentration Units ( )

LDC #: 31953A1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

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

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,

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

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	4/8/2014	1,1-Dichloroethene (IS1)	0.804240	0.804240	0.7866686	0.7866686	13.1477	13.1477
	MS-V5		Trichloroethene (IS2)	0.330604	0.330604	0.3303824	0.3303824	9.748455	9.748462
			1,1,2,2-Tetrachloethane	0.544418	0.544418	0.5527675	0.5527675	2.742399	2.742366

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 #: 31953A1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 2 of 2  
 Reviewer: BR  
 2nd Reviewer: JV6

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,

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 32/80 std)	Recalculated RRF (RRF 32/80 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	2/5/2014	Allyl chloride (IS1)	0.741567	0.741567	0.737045	0.737045	6.962034	6.962036
	MS-V5		Methyl methacrylate (IS2)	0.084568	0.084568	0.08916918	0.08916918	5.522741	5.522764
			Pentachloroethane (IS3)	0.638115	0.638115	0.5958182	0.5958182	14.21785	14.21786

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#: 31953A1

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: BR  
 2nd Reviewer: Ne

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:

Where:  
 $\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 Ax = Area of compound,

Cx = Concentration of compound,  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported % D	Recalculated %D
1	02MAY02	5/2/2014	1,1-Dichloroethene (IS1)	0.786669	0.781880	0.781880	0.6	0.6
			Trichloroethene (IS2)	0.330382	0.3362544	0.3362544	1.8	1.8
			1,1,2,2-Tetrachloethane	0.552767	0.5635751	0.5635751	2.0	2.0
2	02MAY03	5/2/2014	Allyl chloride (IS1)	0.737045	0.675273	0.675273	8.4	8.4
			Methyl methacrylate (IS2)	0.089169	0.08432744	0.08432744	5.4	5.4
			Pentachloroethane (IS3)	0.595818	0.6408399	0.6408399	7.6	7.6

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.



**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**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	10.50	10.14	101	101	0
Bromofluorobenzene	1	9.05	90.5	90.5	0
1,2-Dichlorobenzene-d4	1	11.12	111	111	0
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					

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

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

## VALIDATION FINDINGS WORKSHEET

### Matrix Spike/Matrix Spike Duplicates Results Verification

**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: KH/CS

Compound	Spike Added		Sample Concentration	Spiked Sample Concentration		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc	Reported	Recalc	Reported	Recalculated
H	25.00	25.00	0	24.950	25.320	99.8	99.8	101	101	1.47	1.47
S	↓	↓	↓	26.590	26.520	106	106	106	106	0.264	0.264
V	↓	↓	↓	21.530	22.240	86.1	86.1	89.0	89.0	3.24	3.24
CL	↓	↓	↓	24.470	24.540	97.9	97.9	98.2	98.2	0.286	0.286
DD	↓	↓	↓	24.990	25.210	100	100	101	101	0.876	0.876

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 #: 31953A1

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

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

**METHOD:** GC/MS VOA (EPA Method 524.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory 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 = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: 6XE0192-BS1

Compound	Spike Added		Spiked Sample Concentration		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.00	↓	25.870	↓	103	103	Z			
Trichloroethene	↓	↓	26.430	↓	104	106				
Benzene	↓	↓	21.430	↓	85.7	85.7				
Toluene	↓	↓	24.290	↓	97.2	97.2				
Chlorobenzene	↓	↓	25.320	↓	101	101				

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.



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 30, 2014  
**LDC Report Date:** June 18, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09554

### Sample Identification

SB-3-4/30/14  
EB-8-4/30/14  
MW-23-5\*\*  
MW-23-4  
MW-23-3  
MW-23-2  
MW-23-1  
MW-4-5  
MW-4-4  
MW-4-3\*\*  
MW-4-2  
MW-4-1  
MW-4-4MS  
MW-4-4MSD  
MW-4-4DUP

## Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.7/200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium Iron	1.1730 ug/L 20.503 ug/L	SB-3-4/30/14 EB-8-4/30/14 MW-23-5** MW-23-4 MW-23-3 MW-23-2 MW-23-1 MW-4-5 MW-4-4 MW-4-3**
PB (prep blank)	Iron	38.424 ug/L	MW-4-2 MW-4-1
ICB/CCB	Iron	39.445 ug/L	MW-4-2 MW-4-1
ICB/CCB	Iron	29.401 ug/L	SB-3-4/30/14 MW-4-4

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Iron	38.393 ug/L	EB-8-4/30/14 MW-23-5** MW-23-4 MW-23-3 MW-23-2 MW-23-1 MW-4-5 MW-4-3**
PB (prep blank)	Sodium	0.022611 mg/L	SB-3-4/30/14 EB-8-4/30/14 MW-23-5** MW-23-4 MW-23-3 MW-23-2 MW-23-1 MW-4-5 MW-4-4 MW-4-3**
PB (prep blank)	Magnesium	0.036262 mg/L	MW-4-2 MW-4-1
ICB/CCB	Magnesium	0.022065 mg/L	MW-4-2 MW-4-1
ICB/CCB	Calcium	0.022069 mg/L	SB-3-4/30/14 MW-4-4
ICB/CCB	Calcium Sodium	0.019427 mg/L 0.025975 mg/L	EB-8-4/30/14 MW-23-5** MW-23-4 MW-23-3 MW-23-2 MW-23-1 MW-4-5 MW-4-3**

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-8-4/30/14	Chromium Iron Calcium	0.70 ug/L 19 ug/L 0.035 mg/L	0.70U ug/L 19U ug/L 0.035U mg/L
MW-23-5**	Chromium Iron	0.56 ug/L 100 ug/L	0.56U ug/L 100U ug/L



Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-23-4	Chromium Iron	3.1 ug/L 47 ug/L	3.1U ug/L 47U ug/L
MW-23-3	Chromium Iron	3.1 ug/L 57 ug/L	3.1U ug/L 57U ug/L
MW-23-2	Chromium Iron	0.59 ug/L 40 ug/L	0.59U ug/L 40U ug/L
MW-23-1	Chromium	0.96 ug/L	0.96U ug/L
MW-4-5	Iron	85 ug/L	85U ug/L
MW-4-4	Chromium	2.0 ug/L	2.0U ug/L
MW-4-3**	Chromium	2.3 ug/L	2.3U ug/L
SB-3-4/30/14	Sodium Calcium	0.038 mg/L 0.021 mg/L	0.038U mg/L 0.021U mg/L

#### V. ICP Interference Check Sample (ICS) Analysis

ICP Interference check sample analysis was not required by the method.

#### VI. Matrix Spike/Matrix Spike Duplicates

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

#### VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

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

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

#### IX. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

## X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

## XI. Sample Result Verification

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

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

## XIII. Field Duplicates

No field duplicates were identified in this SDG.

## XIV. Field Blanks

Sample EB-8-4/30/14 was identified as an equipment blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-8-4/30/14	Iron Chromium Calcium	19 ug/L 0.70 ug/L 0.035 mg/L

Sample SB-3-4/30/14 was identified as a source blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
SB-3-4/30/14	Iron Arsenic Lead Calcium Sodium	370 ug/L 3.9 ug/L 0.27 ug/L 0.021 mg/L 0.038 mg/L

**NASA JPL, 2Q2014  
Metals - Data Qualification Summary - SDG 14-09554**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 14-09554**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09554	EB-8-4/30/14	Chromium Iron Calcium	0.70U ug/L 19U ug/L 0.035U mg/L	A
14-09554	MW-23-5**	Chromium Iron	0.56U ug/L 100U ug/L	A
14-09554	MW-23-4	Chromium Iron	3.1U ug/L 47U ug/L	A
14-09554	MW-23-3	Chromium Iron	3.1U ug/L 57U ug/L	A
14-09554	MW-23-2	Chromium Iron	0.59U ug/L 40U ug/L	A
14-09554	MW-23-1	Chromium	0.96U ug/L	A
14-09554	MW-4-5	Iron	85U ug/L	A
14-09554	MW-4-4	Chromium	2.0U ug/L	A
14-09554	MW-4-3**	Chromium	2.3U ug/L	A
14-09554	SB-3-4/30/14	Sodium Calcium	0.038U mg/L 0.021U mg/L	A



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

SB-3-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID: PE2\_140507-107

Sampled: 04/30/14 06:10

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 15:12

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.021	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.038	1	J	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

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JVG 6/23/14



Tidewater Inc.  
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Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**EB-8-4/30/14**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-03

File ID: PE2\_140507-131

Sampled: 04/30/14 06:15

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:20

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence: 1406390

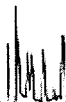
Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.035	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.020	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.017	1	U	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

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*JVS 6/23/14*



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3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-23-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-04

File ID: PE2\_140507-132

Sampled: 04/30/14 06:40

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:22

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	4.3	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.29	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	85	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.6	1		EPA-200.7

*Jvg 6/23/14*



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Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-23-4**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-05

File ID: PE2 140507-133

Sampled: 04/30/14 07:20

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:25

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	33	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	1.8	1		EPA-200.7

*JVC 6/23/14*



Tidewater Inc.  
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Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-23-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-06

File ID: PE2\_140507-134

Sampled: 04/30/14 07:50

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:27

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	47	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	16	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	29	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.9	1		EPA-200.7

*JG 6/23/14*





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Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-23-2**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-07

File ID: PE2\_140507-135

Sampled: 04/30/14 08:20

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:30

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence: 1406390

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	48	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	37	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

*JVG 6/23/14*



Tidewater Inc.  
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Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-23-1**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-08

File ID: PE2\_140507-136

Sampled: 04/30/14 08:50

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:32

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

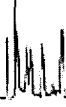
Sequence: 1406390

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	37	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

*JCS 6/23/14*



Tidewater Inc.  
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Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-09

File ID: PE2\_140507-137

Sampled: 04/30/14 09:40

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:35

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence: 1406390

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	14	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	36	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.9	1		EPA-200.7

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-10

File ID: PE2\_140507-101

Sampled: 04/30/14 10:20

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 14:57

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	42	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	14	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	37	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.9	1		EPA-200.7

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-11

File ID: PE2\_140507-138

Sampled: 04/30/14 10:55

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:37

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	45	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	14	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	36	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.9	1		EPA-200.7

*ing 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-12

File ID: PE2\_140507-162

Sampled: 04/30/14 11:30

Prepared: 05/07/14 08:40

Analyzed: 05/07/14 18:07

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0591

Sequence:

1406400

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	43	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	34	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-1

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-13

File ID: PE2\_140507-163

Sampled: 04/30/14 13:20

Prepared: 05/07/14 08:40

Analyzed: 05/07/14 18:09

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0591

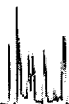
Sequence: 1406400

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	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	21	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

SB-3-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID: PE2\_140507-107

Sampled: 04/30/14 06:10

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 15:12

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	370	1		EPA-200.7

*JVS 6/22/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-8-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-03

File ID: PE2 140507-131

Sampled: 04/30/14 06:15

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:20

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence: 1406390

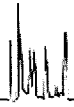
Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	19	1	J	EPA-200.7

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*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-23-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-04

File ID: PE2\_140507-132

Sampled: 04/30/14 06:40

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:22

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

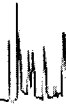
Calibration: UNASSIGNED

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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JRS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-23-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-05

File ID: PE2\_140507-133

Sampled: 04/30/14 07:20

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:25

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

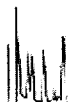
Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	47	1	J	EPA-200.7

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*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-23-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-06

File ID: PE2\_140507-134

Sampled: 04/30/14 07:50

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:27

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence: 1406390

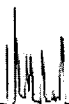
Calibration: UNASSIGNED

Instrument: PE-OP2

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

u

JNS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-23-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-07

File ID: PE2\_140507-135

Sampled: 04/30/14 08:20

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:30

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	40	1	J	EPA-200.7

U

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-23-1

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-08

File ID: PE2\_140507-136

Sampled: 04/30/14 08:50

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:32

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	760	1		EPA-200.7

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-09

File ID: PE2\_140507-137

Sampled: 04/30/14 09:40

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:35

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	85	1		EPA-200.7

u

JYS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-10

File ID: PE2\_140507-101

Sampled: 04/30/14 10:20

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 14:57

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence:

1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	220	1		EPA-200.7

*Jrg 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-11

File ID: PE2\_140507-138

Sampled: 04/30/14 10:55

Prepared: 05/06/14 08:30

Analyzed: 05/07/14 16:37

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0469

Sequence: 1406390

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	430	1		EPA-200.7

*Jrg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-12

File ID: PE2\_140507-162

Sampled: 04/30/14 11:30

Prepared: 05/07/14 08:40

Analyzed: 05/07/14 18:07

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0591

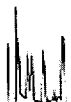
Sequence: 1406400

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	3300	1	B	EPA-200.7

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-4-1

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-13

File ID: PE2\_140507-163

Sampled: 04/30/14 13:20

Prepared: 05/07/14 08:40

Analyzed: 05/07/14 18:09

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0591

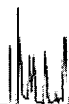
Sequence: 1406400

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	460	1	B	EPA-200.7

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

SB-3-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID: PE\_EL2\_140508-172

Sampled: 04/30/14 06:10

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:28

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

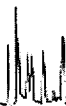
Sequence: 1406438

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	3.9	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.27	1	J	EPA-200.8

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

EB-8-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-03

File ID: PE\_EL2 140508-173

Sampled: 04/30/14 06:15

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:31

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

Sequence:

1406438

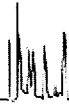
Calibration: UNASSIGNED

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	0.70	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

U

Jy 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-23-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-04

File ID: PE\_EL2\_140508-174

Sampled: 04/30/14 06:40

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:34

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

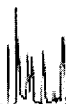
Sequence: 1406438

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	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*jvs 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**MW-23-4**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-05

File ID: PE\_EL2\_140508-175

Sampled: 04/30/14 07:20

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:37

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

Sequence: 1406438

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	3.1	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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JYG 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-23-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-06

File ID: PE\_EL2\_140508-176

Sampled: 04/30/14 07:50

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:41

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

Sequence: 1406438

Calibration: UNASSIGNED

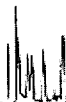
Instrument: PE-EL2

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	3.1	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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JV9 6/23/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-23-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-07

File ID: PE\_EL2\_140508-177

Sampled: 04/30/14 08:20

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:44

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

Sequence: 1406438

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	0.59	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-23-1

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-08

File ID: PE\_EL2\_140508-178

Sampled: 04/30/14 08:50

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:47

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

Sequence: 1406438

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	0.96	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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*jun 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-4-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-09

File ID: PE\_EL2\_140508-179

Sampled: 04/30/14 09:40

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:50

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

Sequence: 1406438

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

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-4-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-10

File ID: PE\_EL2\_140508-164

Sampled: 04/30/14 10:20

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:02

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

Sequence:

1406438

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	2.0	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Jug 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-4-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-11

File ID: PE\_EL2\_140508-180

Sampled: 04/30/14 10:55

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 20:53

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0600

Sequence: 1406438

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	2.3	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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*juv 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-4-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-12

File ID: PE\_EL2\_140508-195

Sampled: 04/30/14 11:30

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 22:01

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0606

Sequence:

1406469

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	16	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*JV9 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 3:32:23PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-4-1

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-13

File ID: PE\_EL2\_140508-196

Sampled: 04/30/14 13:20

Prepared: 05/07/14 09:00

Analyzed: 05/08/14 22:04

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0606

Sequence: 1406469

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

*JVG 6/23/14*

LDC #: 31953A4  
 SDG #: 14-09554  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III/IV

Date: 6-17-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JG

**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.	Technical holding times	A	Sampling dates: 4-30-14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	A	DUP #15, Cr OK by diff.
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	A	not reviewed for level III
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	SW	SB = 1 EB = 2

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

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

1	SB-3-4/30/14	11 <sup>2</sup>	MW-4-2	21		31	
2	EB-8-4/30/14	12 <sup>2</sup>	MW-4-1	22		32	
3	MW-23-5**	13	MW-4-4MS	23		33	
4	MW-23-4	14	MW-4-4MSD	24		34	
5	MW-23-3	15	MW-4-4DUP	25		35	
6	MW-23-2	16		26		36	
7	MW-23-1	17		27		37	
8	MW-4-5	18		28		38	
9	MW-4-4	19		29		39 <sup>1</sup>	PBW
10	MW-4-3**	20		30		40 <sup>2</sup>	PBW

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



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

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution $\leq 5\%$ ?	✓			
<b>III. Calibration</b>				
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 $> 0.995$ ?	✓			
<b>IV. Blanks</b>				
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.	✓			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
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) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\pm RL$ ( $\pm 2X RL$ for soil) was used for samples that were $\leq 5X$ the RL, including when only one of the duplicate sample values were $< 5X$ the RL.	✓			
<b>VII. Laboratory control samples</b>				
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 #: 31953A4

## VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: JVB

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
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?			✓	
<b>IX. ICP Serial Dilution</b>				
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.		✓		
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			



LDC #: 31953A4  
 SDG #: See Cover

**VALIDATION FINDINGS WORKSHEET**  
**PB/ICB/CCB QUALIFIED SAMPLES**

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: JY6

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: 1-10

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	2	3	4	5	6	7	8	9	10
Cr		1.1730		5.865	0.70	0.56	3.1	3.1	0.59	0.96		2.0	2.3
Fe		20.503		102.52	19	100	47	57	40		85		

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 11,12 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.								
Fe		38.424	39.445	197.22									

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 1,9 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.								
Fe			29.401	147.00									

Sample Concentration units, unless otherwise noted: ug/L

Associated Samples: 2-8,10

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (ug/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	2	3	4	5	6	8			
Fe			38.393	191.96	see PB	see PB	see PB	see PB	see PB	see PB			

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1									
Na		0.022611		0.113	0.038									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 11,12 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	No Qual's.									
Mg		0.036262	0.022065	0.181										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1,9

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	1									
Ca			0.022069	0.110	0.021									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 2-8,10

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Limit	2									
Ca			0.019427	0.097	0.035									
Na			0.025975	0.130										

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 #: 31953A4

VALIDATION FINDINGS WORKSHEET  
Field Blanks

Page: 1 of 1  
Reviewer: MG  
2nd reviewer: N/A

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

N N/A Were field blanks identified in this SDG?  
 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 ( )
Fe	370 (µg/L)
As	3.9 ( )
Pb	0.27 (↓)
Ca	0.021 (mg/L)
Na	0.038 (↓)

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

Analyte	Concentration Units ( )
Fe	19 (µg/L)
Cr	0.70 (↓)
Ca	0.035 (mg/L)

LDC #: 31953A4

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

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

**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:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

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	Reported	Acceptable (Y/N)
					%R	%R	
0955 ICV	ICP (Initial calibration)	Fe	51430	50000	103	103	Y
1225 ICV	ICP/MS (Initial calibration)	Cr	51.146	50.00	102	102	↓
	CVAA (Initial calibration)						
1612 CCVB	ICP (Continuing calibration)	Fe	52350	50000	105	105	
2021 CCVD	ICP/MS (Continuing calibration)	Pb	100.231	100.00	100	100	
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

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.

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**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:

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

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
1004 IFB1	ICP interference check	Ca	497.0 (mg/L)	500.0 (mg/L)	99.4	99.4	Y
1454 LCS	Laboratory control sample	Fe	1090 (mg/L)	1000.0 (mg/L)	109	109	↓
2011 13	Matrix spike	As	(SSR-SR) 104.68 (mg/L)	100.0 (mg/L)	105	105	
1457/1459 15	Duplicate	K	1.901 (mg/L)	1.973 (mg/L)	3.72	3.73	
1457/1502 9	ICP serial dilution	Mg	14.40 (mg/L)	14.55 (mg/L)	1.0	1.1	

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.





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014

**Collection Date:** April 30, 2014

**LDC Report Date:** June 19, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** EPA Level III & IV

**Laboratory:** BC Laboratories, Inc.

**Sample Delivery Group (SDG):** 14-09554

### Sample Identification

SB-3-4/30/14	MW-4-3MSD
EB-8-4/30/14	MW-4-3DUP
MW-23-5**	MW-4-2DUP
MW-23-4	
MW-23-3	
MW-23-2	
MW-23-1	
MW-4-5	
MW-4-4	
MW-4-3**	
MW-4-2	
MW-4-1	
SB-3-4/30/14DUP	
MW-23-5MS	
MW-23-5MSD	
MW-23-5DUP	
MW-4-4MS	
MW-4-4MSD	
MW-4-4DUP	
MW-4-3MS	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 23 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as N, and Sulfate, EPA Method 353.2 for Nitrite as N, EPA SW 846 Method 7196 for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
MW-4-2	pH	48.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-4-2DUP	pH	49 hours	48 hours	J (all detects) UJ (all non-detects)	P

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

## II. 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. Blanks

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

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Chloride Sulfate	0.19900 mg/L 0.30400 mg/L	SB-3-4/30/14 EB-8-4/30/14 MW-23-5**
PB (prep blank)	Chloride Sulfate	0.21200 mg/L 0.30800 mg/L	MW-23-4 MW-23-3 MW-23-2 MW-23-1 MW-4-5 MW-4-4 MW-4-3** MW-4-2 MW-4-1
ICB/CCB	Chloride Sulfate	0.22400 mg/L 0.34100 mg/L	SB-3-4/30/14 EB-8-4/30/14

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Chloride Sulfate	0.22400 mg/L 0.33400 mg/L	MW-23-5** MW-23-4 MW-23-3 MW-4-5 MW-4-4
ICB/CCB	Chloride Sulfate	0.20200 mg/L 0.33800 mg/L	MW-4-3** MW-4-2 MW-4-1
ICB/CCB	Chloride Sulfate	0.22900 mg/L 0.38300 mg/L	MW-23-2 MW-23-1
PB (prep blank)	Hexavalent chromium	0.000876 mg/L	MW-23-4 MW-23-3 MW-23-2 MW-23-1 MW-4-5 MW-4-4 MW-4-3** MW-4-2 MW-4-1
ICB/CCB	Hexavalent chromium	0.000784 mg/L	All samples in SDG 14-09554

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

Sample	Analyte	Reported Concentration	Modified Final Concentration
SB-3-4/30/14	Chloride Sulfate Hexavalent chromium	0.25 mg/L 0.34 mg/L 0.00087 mg/L	0.25U mg/L 0.34U mg/L 0.00087U mg/L
EB-8-4/30/14	Chloride Sulfate Hexavalent chromium	0.20 mg/L 0.32 mg/L 0.00084 mg/L	0.20U mg/L 0.32U mg/L 0.00084U mg/L
MW-23-5**	Hexavalent chromium	0.00079 mg/L	0.00079U mg/L
MW-23-4	Hexavalent chromium	0.0036 mg/L	0.0036U mg/L
MW-23-3	Hexavalent chromium	0.0038 mg/L	0.0038U mg/L
MW-23-2	Hexavalent chromium	0.0020 mg/L	0.0020U mg/L
MW-23-1	Hexavalent chromium	0.0014 mg/L	0.0014U mg/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-4-5	Hexavalent chromium	0.00083 mg/L	0.00083U mg/L
MW-4-4	Hexavalent chromium	0.0011 mg/L	0.0011U mg/L
MW-4-3**	Hexavalent chromium	0.0016 mg/L	0.0016U mg/L
MW-4-2	Hexavalent chromium	0.00070 mg/L	0.00070U mg/L

## V. Matrix Spike/Matrix Spike Duplicates

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

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

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

## VIII. Sample Result Verification

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.

## IX. Overall Assessment of Data

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

## X. Field Duplicates

No field duplicates were identified in this SDG.

## XI. Field Blanks

Sample EB-8-4/30/14 was identified as an equipment blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-8-4/30/14	pH Chloride Sulfate Hexavalent chromium	5.46 units 0.20 mg/L 0.32 mg/L 0.00084 mg/L

Sample SB-3-4/30/14 was identified as a source blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Analyte	Concentration
SB-3-4/30/14	pH Chloride Sulfate Hexavalent chromium	5.60 units 0.25 mg/L 0.34 mg/L 0.00087 mg/L

**NASA JPL, 2Q2014**  
**Wet Chemistry - Data Qualification Summary - SDG 14-09554**

SDG	Sample	Analyte	Flag	A or P	Reason
14-09554	MW-4-2	pH	J (all detects) UJ (all non-detects)	P	Technical holding time

**NASA JPL, 2Q2014**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-09554**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09554	SB-3-4/30/14	Chloride Sulfate Hexavalent chromium	0.25U mg/L 0.34U mg/L 0.00087U mg/L	A
14-09554	EB-8-4/30/14	Chloride Sulfate Hexavalent chromium	0.20U mg/L 0.32U mg/L 0.00084U mg/L	A
14-09554	MW-23-5**	Hexavalent chromium	0.00079U mg/L	A
14-09554	MW-23-4	Hexavalent chromium	0.0036U mg/L	A
14-09554	MW-23-3	Hexavalent chromium	0.0038U mg/L	A
14-09554	MW-23-2	Hexavalent chromium	0.0020U mg/L	A
14-09554	MW-23-1	Hexavalent chromium	0.0014U mg/L	A
14-09554	MW-4-5	Hexavalent chromium	0.00083U mg/L	A
14-09554	MW-4-4	Hexavalent chromium	0.0011U mg/L	A
14-09554	MW-4-3**	Hexavalent chromium	0.0016U mg/L	A
14-09554	MW-4-2	Hexavalent chromium	0.00070U mg/L	A





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

SB-3-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID: Tiamo050114-101

Sampled: 04/30/14 06:10

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 20:25

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

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

*JVS 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

EB-8-4/30/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-03</u>	File ID: <u>Tiamo050114-103</u>	
Sampled: <u>04/30/14 06:15</u>	Prepared: <u>05/01/14 11:00</u>	Analyzed: <u>05/01/14 20:36</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0150</u>	Sequence: <u>1406048</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

*jvs f 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-23-5**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-04

File ID: Tiamo050114-104

Sampled: 04/30/14 06:40

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 20:41

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

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	37	1		SM-2320B
---	Total Alkalinity as CaCO3	160	1		SM-2320B

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-23-4**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-05

File ID: Tiamo050114-105

Sampled: 04/30/14 07:20

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 20:47

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

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	140	1		SM-2320B

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-23-3**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-06

File ID: Tiamo050114-106

Sampled: 04/30/14 07:50

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 20:53

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

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	140	1		SM-2320B

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-23-2**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-07

File ID: Tiamo050114-107

Sampled: 04/30/14 08:20

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 20:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

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

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-23-1**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-08

File ID: Tiamo050114-108

Sampled: 04/30/14 08:50

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 21:04

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

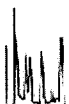
Sequence: 1406048

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	210	2	D	SM-2320B

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-4-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-09

File ID: Tiamo050114-109

Sampled: 04/30/14 09:40

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 21:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

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

*Jvg 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-4-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-10

File ID: Tiamo050114-110

Sampled: 04/30/14 10:20

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 21:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

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

*JVG 6/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-4-3**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-11

File ID: Tiamo050114-111

Sampled: 04/30/14 10:55

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 21:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

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

*JVG 6/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-4-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-12

File ID: Tiamo050214-025

Sampled: 04/30/14 11:30

Prepared: 05/02/14 07:00

Analyzed: 05/02/14 12:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0201

Sequence: 1406119

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

*jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-4-1**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-13

File ID: Tiamo050214-027

Sampled: 04/30/14 13:20

Prepared: 05/02/14 07:00

Analyzed: 05/02/14 12:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0201

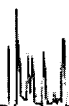
Sequence: 1406119

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

*jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**SB-3-4/30/14**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID: E043014.seq-57

Sampled: 04/30/14 06:10

Prepared: 04/30/14 22:30

Analyzed: 05/01/14 07:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0021

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.25	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	0.34	1	J	EPA-300.0

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*JYG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**EB-8-4/30/14**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-03

File ID: E043014.seq-58

Sampled: 04/30/14 06:15

Prepared: 04/30/14 22:30

Analyzed: 05/01/14 07:23

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0021

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.20	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	0.32	1	J	EPA-300.0

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u

*jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-23-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-04

File ID: E043014.seq-63

Sampled: 04/30/14 06:40

Prepared: 04/30/14 22:30

Analyzed: 05/01/14 08:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0021

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.5	1		EPA-300.0
14797-55-8	Nitrate as N	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	9.7	1		EPA-300.0

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-23-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-05

File ID: E043014.seq-64

Sampled: 04/30/14 07:20

Prepared: 05/01/14 07:30

Analyzed: 05/01/14 08:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0022

Sequence: 1406069

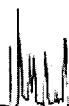
Calibration: UNASSIGNED

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	3.4	1		EPA-300.0
14808-79-8	Sulfate	9.3	1		EPA-300.0

JMS 6/23/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-23-3**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-06

File ID: E043014.seq-65

Sampled: 04/30/14 07:50

Prepared: 05/01/14 07:30

Analyzed: 05/01/14 08:57

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0022

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	36	1		EPA-300.0
14797-55-8	Nitrate as N	9.5	1		EPA-300.0
14808-79-8	Sulfate	25	1		EPA-300.0

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-23-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-07RE1

File ID: E043014.seq-91

Sampled: 04/30/14 08:20

Prepared: 05/01/14 07:30

Analyzed: 05/01/14 14:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0022

Sequence: 1406069

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	170	1		EPA-300.0

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-23-1**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-08RE1

File ID: E043014.seq-92

Sampled: 04/30/14 08:50

Prepared: 05/01/14 07:30

Analyzed: 05/01/14 14:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0022

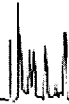
Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

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	13	1		EPA-300.0
14808-79-8	Sulfate	200	1		EPA-300.0

*JUG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-4-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-09

File ID: E043014.seq-68

Sampled: 04/30/14 09:40

Prepared: 05/01/14 07:30

Analyzed: 05/01/14 09:37

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0022

Sequence:

1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	29	1		EPA-300.0
14797-55-8	Nitrate as N	2.1	1		EPA-300.0
14808-79-8	Sulfate	21	1		EPA-300.0

JVS 6/23/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

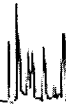
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

<b>MW-4-4</b>
---------------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>	
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>	
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-10</u>	File ID: <u>E043014.seq-69</u>
Sampled: <u>04/30/14 10:20</u>	Prepared: <u>05/01/14 07:30</u>	Analyzed: <u>05/01/14 09:51</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>
Batch: <u>BXE0022</u>	Sequence: <u>1406069</u>	Calibration: <u>UNASSIGNED</u> Instrument: <u>IC5</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	30	1		EPA-300.0
14797-55-8	Nitrate as N	5.1	1		EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-4-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-11

File ID: E043014.seq-75

Sampled: 04/30/14 10:55

Prepared: 05/01/14 07:30

Analyzed: 05/01/14 11:11

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0022

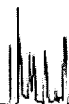
Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	29	1		EPA-300.0
14797-55-8	Nitrate as N	6.2	1		EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-4-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-12

File ID: E043014.seq-76

Sampled: 04/30/14 11:30

Prepared: 05/01/14 07:30

Analyzed: 05/01/14 11:24

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0022

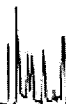
Sequence: 1406069

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	11	1		EPA-300.0
14808-79-8	Sulfate	140	1		EPA-300.0

JUS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-4-1

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-13

File ID: E043014.seq-77

Sampled: 04/30/14 13:20

Prepared: 05/01/14 07:30

Analyzed: 05/01/14 11:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0022

Sequence: 1406069

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	1.1	1		EPA-300.0
14808-79-8	Sulfate	30	1		EPA-300.0

*Jug 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

SB-3-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID: 140501 0828 NO2-131

Sampled: 04/30/14 06:10

Prepared: 05/01/14 08:28

Analyzed: 05/01/14 09:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0122

Sequence: 1406095

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

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

EB-8-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-03

File ID: 140501 0828 NO2-132

Sampled: 04/30/14 06:15

Prepared: 05/01/14 08:28

Analyzed: 05/01/14 09:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0122

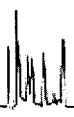
Sequence: 1406095

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

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-23-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-04

File ID: 140501 0828 NO2-127

Sampled: 04/30/14 06:40

Prepared: 05/01/14 08:28

Analyzed: 05/01/14 09:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0122

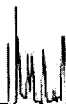
Sequence: 1406095

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

*Jug 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-23-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-05

File ID: 140501 0828 NO2-133

Sampled: 04/30/14 07:20

Prepared: 05/01/14 08:28

Analyzed: 05/01/14 09:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0122

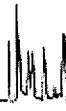
Sequence: 1406095

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

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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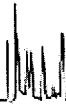
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-23-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-06</u>	File ID: <u>140501 0828 NO2-134</u>	
Sampled: <u>04/30/14 07:50</u>	Prepared: <u>05/01/14 08:28</u>	Analyzed: <u>05/01/14 09:56</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0122</u>	Sequence: <u>1406095</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*JVS 6/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-23-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-07

File ID: 140501 0828 NO2-137

Sampled: 04/30/14 08:20

Prepared: 05/01/14 08:28

Analyzed: 05/01/14 10:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0122

Sequence: 1406095

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

*JVG 6/22/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-23-1
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-08</u>	File ID: <u>140501 0828 NO2-138</u>	
Sampled: <u>04/30/14 08:50</u>	Prepared: <u>05/01/14 08:28</u>	Analyzed: <u>05/01/14 10:01</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0122</u>	Sequence: <u>1406095</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*jvs 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

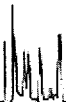
MW-4-5
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-09</u>	File ID: <u>140501 0828 NO2-139</u>	
Sampled: <u>04/30/14 09:40</u>	Prepared: <u>05/01/14 08:28</u>	Analyzed: <u>05/01/14 10:01</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0122</u>	Sequence: <u>1406095</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.039	1	J	EPA-353.2

*jvg 6/23/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-4-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-10

File ID: 140501 0828 NO2-143

Sampled: 04/30/14 10:20

Prepared: 05/01/14 10:00

Analyzed: 05/01/14 10:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0126

Sequence: 1406095

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

*Jvg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-4-3
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-11</u>	File ID: <u>140501 0828 NO2-140</u>	
Sampled: <u>04/30/14 10:55</u>	Prepared: <u>05/01/14 08:28</u>	Analyzed: <u>05/01/14 10:01</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0122</u>	Sequence: <u>1406095</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*jug 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

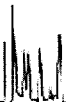
**EPA-353.2**

MW-4-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-12</u>	File ID: <u>140501 0828 NO2-149</u>	
Sampled: <u>04/30/14 11:30</u>	Prepared: <u>05/01/14 08:28</u>	Analyzed: <u>05/01/14 10:03</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0122</u>	Sequence: <u>1406095</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*jrg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-4-1

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-13

File ID: 140501 0828 NO2-150

Sampled: 04/30/14 13:20

Prepared: 05/01/14 10:00

Analyzed: 05/01/14 10:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0126

Sequence:

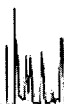
1406095

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

*jvg 6/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**SB-3-4/30/14**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID: 140430 1017 CR6-226

Sampled: 04/30/14 06:10

Prepared: 04/30/14 20:42

Analyzed: 04/30/14 23:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0089

Sequence: 1406061

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00087	1	J	EPA-7196

u

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

EB-8-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-03

File ID: 140430 1017 CR6-227

Sampled: 04/30/14 06:15

Prepared: 04/30/14 20:42

Analyzed: 04/30/14 23:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0089

Sequence: 1406061

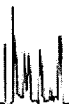
Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00084	1	J	EPA-7196

u

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-23-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-04

File ID: 140430 1017 CR6-228

Sampled: 04/30/14 06:40

Prepared: 04/30/14 20:42

Analyzed: 04/30/14 23:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0089

Sequence: 1406061

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00079	1	J	EPA-7196

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JTG 6/23/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-23-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-05

File ID: 140430 1017 CR6-229

Sampled: 04/30/14 07:20

Prepared: 04/30/14 20:42

Analyzed: 04/30/14 23:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0091

Sequence: 1406061

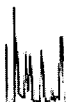
Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0036	1		EPA-7196

*JVG 6/22/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-23-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-06</u>	File ID: <u>140430 1017 CR6-232</u>	
Sampled: <u>04/30/14 07:50</u>	Prepared: <u>04/30/14 20:42</u>	Analyzed: <u>04/30/14 23:21</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0091</u>	Sequence: <u>1406061</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0038	1		EPA-7196

*jug 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-23-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-07</u>	File ID: <u>140430 1017 CR6-233</u>	
Sampled: <u>04/30/14 08:20</u>	Prepared: <u>04/30/14 20:42</u>	Analyzed: <u>04/30/14 23:21</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0091</u>	Sequence: <u>1406061</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0020	1		EPA-7196

*avg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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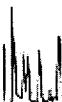
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-23-1
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-08</u>	File ID: <u>140430 1017 CR6-234</u>	
Sampled: <u>04/30/14 08:50</u>	Prepared: <u>04/30/14 20:42</u>	Analyzed: <u>04/30/14 23:21</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0091</u>	Sequence: <u>1406061</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0014	1	J	EPA-7196

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-4-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-09

File ID: 140430 1017 CR6-235

Sampled: 04/30/14 09:40

Prepared: 04/30/14 20:42

Analyzed: 04/30/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0091

Sequence: 1406061

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00083	1	J	EPA-7196

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*Jvg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-4-4
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-10</u>
	File ID: <u>140430 1017 CR6-222</u>
Sampled: <u>04/30/14 10:20</u>	Prepared: <u>04/30/14 20:42</u>
	Analyzed: <u>04/30/14 23:15</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
	Initial/Final: <u>20 ml / 20 ml</u>
Batch: <u>BXE0091</u>	Sequence: <u>1406061</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0011	1	J	EPA-7196

*Jvg 6/23/14*

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Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-4-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-11

File ID: 140430 1017 CR6-236

Sampled: 04/30/14 10:55

Prepared: 04/30/14 20:42

Analyzed: 04/30/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0091

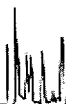
Sequence: 1406061

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

*Jvg 6/22/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-4-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-12

File ID: 140430 1017 CR6-237

Sampled: 04/30/14 11:30

Prepared: 04/30/14 20:42

Analyzed: 04/30/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0091

Sequence: 1406061

Calibration: UNASSIGNED

Instrument: KONE-1

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

*JMG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-4-1

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-13

File ID: 140430 1017 CR6-238

Sampled: 04/30/14 13:20

Prepared: 04/30/14 20:42

Analyzed: 04/30/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0091

Sequence: 1406061

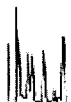
Calibration: UNASSIGNED

Instrument: KONE-1

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

*Jrg 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

SB-3-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID: F051314.seq-35.0000.txt

Sampled: 04/30/14 06:10

Prepared: 05/13/14 08:00

Analyzed: 05/13/14 17:07

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1141

Sequence: 1406699

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*jug 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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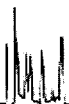
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

EB-8-4/30/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-03</u>	File ID: <u>F051314.seq-36.0000.txt</u>	
Sampled: <u>04/30/14 06:15</u>	Prepared: <u>05/13/14 08:00</u>	Analyzed: <u>05/13/14 17:21</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1141</u>	Sequence: <u>1406699</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-23-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-04

File ID: F051314.seq-37.0000.txt

Sampled: 04/30/14 06:40

Prepared: 05/13/14 08:00

Analyzed: 05/13/14 17:35

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1141

Sequence: 1406699

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*JVS 6/22/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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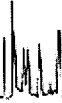
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-23-4
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-05</u>	File ID: <u>F051314.seq-38.0000.txt</u>	
Sampled: <u>04/30/14 07:20</u>	Prepared: <u>05/13/14 08:00</u>	Analyzed: <u>05/13/14 17:49</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1141</u>	Sequence: <u>1406699</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-23-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-06

File ID: F051314.seq-41.0000.txt

Sampled: 04/30/14 07:50

Prepared: 05/13/14 08:00

Analyzed: 05/13/14 18:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1141

Sequence: 1406699

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

*JUG 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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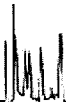
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-23-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-07</u>	File ID: <u>F051314.seq-42.0000.txt</u>	
Sampled: <u>04/30/14 08:20</u>	Prepared: <u>05/13/14 08:00</u>	Analyzed: <u>05/13/14 18:44</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1141</u>	Sequence: <u>1406699</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.7	1		EPA-314.0

*jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-23-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-08</u>	File ID: <u>F051314.seq-43.0000.txt</u>	
Sampled: <u>04/30/14 08:50</u>	Prepared: <u>05/13/14 08:00</u>	Analyzed: <u>05/13/14 18:58</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1141</u>	Sequence: <u>1406699</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.6	1	J	EPA-314.0

*jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**MW-4-5**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-09

File ID: F051314.seq-44.0000.txt

Sampled: 04/30/14 09:40

Prepared: 05/13/14 08:00

Analyzed: 05/13/14 19:12

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1141

Sequence: 1406699

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.0	1	J	EPA-314.0

*jug 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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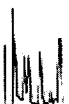
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-4-4
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-10</u>	File ID: <u>F051314.seq-45.0000.txt</u>	
Sampled: <u>04/30/14 10:20</u>	Prepared: <u>05/13/14 08:00</u>	Analyzed: <u>05/13/14 19:26</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1141</u>	Sequence: <u>1406699</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.0	1	J	EPA-314.0

*Jv9 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**MW-4-3**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-11

File ID: F051314.seq-49.0000.txt

Sampled: 04/30/14 10:55

Prepared: 05/13/14 19:00

Analyzed: 05/13/14 20:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1149

Sequence: 1406699

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

*JVG 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-4-2
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-12RE2</u>	File ID: <u>F051314.seq-82.0000.txt</u>	
Sampled: <u>04/30/14 11:30</u>	Prepared: <u>05/13/14 19:00</u>	Analyzed: <u>05/14/14 11:09</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1149</u>	Sequence: <u>1406699</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	64	5	D	EPA-314.0

*jug 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**MW-4-1**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-13</u>	File ID: <u>F051314.seq-69.0000.txt</u>	
Sampled: <u>04/30/14 13:20</u>	Prepared: <u>05/13/14 19:00</u>	Analyzed: <u>05/14/14 01:37</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1149</u>	Sequence: <u>1406699</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*jug 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

SB-3-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID: Tiamo050114-101

Sampled: 04/30/14 06:10

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 20:25

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

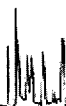
Sequence: 1406048

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.60	1		EPA-150.1

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

EB-8-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-03

File ID: Tiamo050114-103

Sampled: 04/30/14 06:15

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 20:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.46	1		EPA-150.1

*jvg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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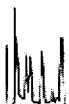
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

**MW-23-5**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-04</u>	File ID: <u>Tiamo050114-104</u>	
Sampled: <u>04/30/14 06:40</u>	Prepared: <u>05/01/14 11:00</u>	Analyzed: <u>05/01/14 20:41</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0150</u>	Sequence: <u>1406048</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.51	1		EPA-150.1

*jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

**MW-23-4**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-05

File ID: Tiamo050114-105

Sampled: 04/30/14 07:20

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 20:47

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.25	1		EPA-150.1

*JVG 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-23-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-06

File ID: Tiamo050114-106

Sampled: 04/30/14 07:50

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 20:53

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.96	1		EPA-150.1

*JVG 6/2/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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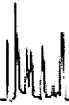
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-23-2
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-07</u>	File ID: <u>Tiamo050114-107</u>	
Sampled: <u>04/30/14 08:20</u>	Prepared: <u>05/01/14 11:00</u>	Analyzed: <u>05/01/14 20:59</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0150</u>	Sequence: <u>1406048</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.73	1		EPA-150.1

*JVS 6/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

**MW-23-1**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-08

File ID: Tiamo050114-108

Sampled: 04/30/14 08:50

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 21:04

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.50	1		EPA-150.1

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-4-5

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-09

File ID: Tiamo050114-109

Sampled: 04/30/14 09:40

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 21:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.12	1		EPA-150.1

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-4-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-10

File ID: Tiamo050114-110

Sampled: 04/30/14 10:20

Prepared: 05/01/14 11:00

Analyzed: 05/01/14 21:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0150

Sequence: 1406048

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.97	1		EPA-150.1

*JRS 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

<b>MW-4-3</b>
---------------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-11</u>	File ID: <u>Tiamo050114-111</u>	
Sampled: <u>04/30/14 10:55</u>	Prepared: <u>05/01/14 11:00</u>	Analyzed: <u>05/01/14 21:21</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0150</u>	Sequence: <u>1406048</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.01	1		EPA-150.1

*jug 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-4-2

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-12

File ID: Tiamo050214-025

Sampled: 04/30/14 11:30

Prepared: 05/02/14 07:00

Analyzed: 05/02/14 12:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0201

Sequence: 1406119

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.28	1		EPA-150.1

J

*jug c/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-4-1
--------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-13</u>	File ID: <u>Tiamo050214-027</u>	
Sampled: <u>04/30/14 13:20</u>	Prepared: <u>05/02/14 07:00</u>	Analyzed: <u>05/02/14 12:28</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0201</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.44	1		EPA-150.1

*JCS 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

SB-3-4/30/14

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-02

File ID:

Sampled: 04/30/14 06:10

Prepared: 05/05/14 13:00

Analyzed: 05/05/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0307

Sequence: 1406242

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

*Jig 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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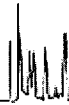
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

EB-8-4/30/14
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-03</u> File ID:
Sampled: <u>04/30/14 06:15</u>	Prepared: <u>05/05/14 13:00</u> Analyzed: <u>05/05/14 13:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u> Initial/Final: <u>100 ml / 100 ml</u>
Batch: <u>BXE0307</u> Sequence: <u>1406242</u>	Calibration: <u>UNASSIGNED</u> Instrument: <u>MANUAL</u>

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

*JYG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**MW-23-5**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-04

File ID:

Sampled: 04/30/14 06:40

Prepared: 05/05/14 13:00

Analyzed: 05/05/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0307

Sequence:

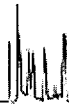
1406242

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

*jrg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-23-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-05

File ID:

Sampled: 04/30/14 07:20

Prepared: 05/05/14 13:00

Analyzed: 05/05/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0307

Sequence:

1406242

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

*jrg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

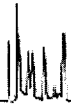
**EPA-160.1**

MW-23-3
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-06</u>	File ID:	
Sampled: <u>04/30/14 07:50</u>	Prepared: <u>05/05/14 13:00</u>	Analyzed: <u>05/05/14 13:00</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>100 ml / 100 ml</u>	
Batch: <u>BXE0307</u>	Sequence: <u>1406242</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MANUAL</u>

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

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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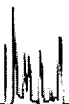
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-23-2
---------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-07</u> File ID:
Sampled: <u>04/30/14 08:20</u>	Prepared: <u>05/05/14 13:00</u> Analyzed: <u>05/05/14 13:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u> Initial/Final: <u>100 ml / 100 ml</u>
Batch: <u>BXE0307</u> Sequence: <u>1406242</u>	Calibration: <u>UNASSIGNED</u> Instrument: <u>MANUAL</u>

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

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**MW-23-1**

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-08

File ID:

Sampled: 04/30/14 08:50

Prepared: 05/05/14 13:00

Analyzed: 05/05/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0307

Sequence: 1406242

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	750	5	D	EPA-160.1

*JUG 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

<b>MW-4-5</b>
---------------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>	
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>	
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-09</u>	File ID:
Sampled: <u>04/30/14 09:40</u>	Prepared: <u>05/05/14 13:00</u>	Analyzed: <u>05/05/14 13:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>100 ml / 100 ml</u>
Batch: <u>BXE0307</u>	Sequence: <u>1406242</u>	Calibration: <u>UNASSIGNED</u> Instrument: <u>MANUAL</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	270	2	D	EPA-160.1

*JCG 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-4-4

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-10

File ID:

Sampled: 04/30/14 10:20

Prepared: 05/05/14 13:00

Analyzed: 05/05/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0307

Sequence:

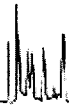
1406242

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

JRS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-4-3

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-11

File ID:

Sampled: 04/30/14 10:55

Prepared: 05/05/14 13:00

Analyzed: 05/05/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0307

Sequence:

1406242

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

JUG 6/23/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/9/2014 9:41:46AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

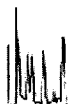
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-4-2
--------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09554</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409554-12</u>	File ID:	
Sampled: <u>04/30/14 11:30</u>	Prepared: <u>05/05/14 13:00</u>	Analyzed: <u>05/05/14 13:00</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>100 ml / 100 ml</u>	
Batch: <u>BXE0308</u>	Sequence: <u>1406242</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MANUAL</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	710	3.33	D	EPA-160.1

*jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/9/2014 9:41:46AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-4-1

Laboratory: BC Laboratories

SDG: 14-09554

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409554-13

File ID:

Sampled: 04/30/14 13:20

Prepared: 05/05/14 13:00

Analyzed: 05/05/14 13:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0308

Sequence:

1406242

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

*Jug 6/22/14*

LDC #: 31953A6  
 SDG #: 14-09554  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III/IV

Date: 6-17-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: M6

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Nitrite-N (EPA Method 353.2), Hexavalent Chromium (EPA SW846 Method 7196), 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.	Technical holding times	SW	Sampling dates: 4-30-14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	SW	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP #19, 22-C104 OK by diff.
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	A	Not reviewed for Level III validation.
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	SW	SB = 1 EB = 2

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

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

1	SB-3-4/30/14	11	MW-4-2	21	MW-4-3MSD	31	
2	EB-8-4/30/14	12	MW-4-1	22	MW-4-3DUP	32	
3	MW-23-5**	13	SB-3-4/30/14DUP	23	MW-4-2DUP	33	
4	MW-23-4	14	MW-23-5MS	24		34	
5	MW-23-3	15	MW-23-5MSD	25		35	
6	MW-23-2	16	MW-23-5DUP	26		36	
7	MW-23-1	17	MW-4-4MS	27		37	
8	MW-4-5	18	MW-4-4MSD	28		38	
9	MW-4-4	19	MW-4-4DUP	29		39	PBW
10	MW-4-3**	20	MW-4-3MS	30		40	PBW

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Method:** Inorganics (EPA Method *See cover*)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.		✓		
Cooler temperature criteria was met.			✓	
<b>II. Calibration</b>				
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)	✓			
<b>III. Blanks</b>				
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.	✓			
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
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.	✓			
<b>V. Laboratory control samples</b>				
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% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 31953A6

**VALIDATION FINDINGS CHECKLIST**

Page: 2 of 2  
 Reviewer: MC  
 2nd Reviewer: JG

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			







**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

METHOD: Inorganics, Method See Cover

Conc. units: mg/L

Associated Samples: 1-3

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		1	2										
Cl	0.19900		0.995	0.25	0.20										
SO4	0.30400		1.520	0.34	0.32										

Conc. units: mg/L

Associated Samples: 4-12 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		No Qual's.											
Cl	0.21200		1.060												
SO4	0.30800		1.540												

Conc. units: mg/L

Associated Samples: 1,2

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		1	2										
Cl		0.22400	1.120	see PB	see PB										
SO4		0.34100	1.705	see PB	see PB										

Conc. units: mg/L

Associated Samples: 3-5,8,9 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		No Qual's.											
Cl		0.22400	1.120												
SO4		0.33400	1.670												

## VALIDATION FINDINGS WORKSHEET

### Blanks

METHOD: Inorganics, Method See Cover

Conc. units: mg/L

Associated Samples: 10-12 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit													
	PB	ICB/CCB (mg/L)		No Qual's.												
Cl		0.20200	1.010													
SO4		0.33800	1.690													

Conc. units: mg/L

Associated Samples: 6,7 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit													
	PB	ICB/CCB (mg/L)		No Qual's.												
Cl		0.22900	1.145													
SO4		0.38300	1.915													

Conc. units: mg/L

Associated Samples: 4-12

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB	ICB/CCB (mg/L)		4	5	6	7	8	9	10	11		
Cr VI	0.000876		0.00438	0.0036	0.0038	0.0020	0.0014	0.00083	0.0011	0.0016	0.00070		

Conc. units: mg/L

Associated Samples: all

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB	ICB/CCB (mg/L)		1	2	3	4	5	6	7	8	9	10
Cr VI		0.000784	0.00392	0.00087	0.00084	0.00079	see PB	see PB	see PB	see PB	see PB	see PB	see PB

Conc. units: mg/L

Associated Samples: all

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB	ICB/CCB (mg/L)		11									
Cr VI		0.000784	0.00392	see PB									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT: All contaminants within five times the method blank concentration

LDC #: 31953A6

VALIDATION FINDINGS WORKSHEET  
Field Blanks

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

METHOD: Inorganics, EPA Method see cover

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

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

Analyte	Concentration Units ( )
pH	5.60 (pH units)
Cl	0.25 (mg/L)
SO <sub>4</sub>	0.34 ( )
Cr VI	0.00087 ( ↓ )

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

Analyte	Concentration Units ( )
pH	5.46 (pH units)
Cl	0.20 (mg/L)
SO <sub>4</sub>	0.32 ( ↓ )
Cr VI	0.00084 ( ↓ )

LDC #: 31953A6

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

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

**METHOD:** Inorganics, Method see cover

The correlation coefficient (r) for the calibration of ClO<sub>4</sub> was recalculated. Calibration date: 5-6-14

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

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       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	Reported	Acceptable (Y/N)
					r or %R	r or %R	
Initial calibration	ClO <sub>4</sub>	Blank	-	-	r <sup>2</sup> = 0.999017	r <sup>2</sup> = 0.997739	Y
		Standard 1	2.0 (mg/L)	0.0021			
		Standard 2	4.0 ( )	0.0035			
		Standard 3	6.0 ( )	0.0049			
		Standard 4	10.0 ( )	0.0081			
		Standard 5	20.0 (↓)	0.0164			
		Standard 6	-	-			
		Standard 7	-	-			
Calibration verification	NO <sub>3</sub> -N	0803 CCV5	5.131 (mg/L)	5.000 (mg/L)	103	103	↓
Calibration verification	SO <sub>4</sub>	0803 CCV5	102.50 (mg/L)	100.0 (mg/L)	102	102	
Calibration verification	NO <sub>2</sub> -N	0955 CCVA	0.483 (mg/L)	0.500 (mg/L)	96.6	96.7	

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 #: 31953A6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

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

**METHOD:** Inorganics, Method see cover

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
2049 LCS	Laboratory control sample	Cr VI	0.0490 (mg/L)	0.050 (mg/L)	98.0	97.8	Y
1017 17	Matrix spike sample	Cl	(SSR-SR) 53.70 (mg/L)	50.50 (mg/L)	106	106	↓
19	Duplicate sample	TDS	292 (mg/L)	298 (mg/L)	2.03	2.03	

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.

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LDC #: 31953A6

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

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

METHOD: Inorganics, Method see cover

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

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments?
- N N/A Are all detection limits below the CRQL?

Compound (analyte) results for # 3, SO4 reported with a positive detect were recalculated and verified using the following equation:

Concentration = Quadratic; 1x dil Recalculation:

$$SO_4 = \frac{\sqrt{4 \times (0.0001) \times (1.288 + 0.0380) + (0.1358)^2} - 0.1358}{2 \times (0.0001)} = 9.694 \text{ mg/L}$$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	3 ↓	pH	9.51 (pH units)	9.51 (pH units)	Y ↓
		SO4	9.7	9.7	
		Cr VI	0.00079	0.0013	
2	10 ↓	TDS	310	310	↓
		ClO4	2.6 (ug/L)	2.5 (ug/L)	
		Total Alk	150	150	

Note: method 353.2 is N.D. for level IV samples.

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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 1, 2014  
**LDC Report Date:** June 19, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09680

**Sample Identification**

TB-9-5/1/14  
MW-9  
Dup-5-2Q14  
MW-1  
Dup-6-2Q14  
MW-13  
MW-6  
MW-16  
MW-15  
Dup-7-2Q14  
MW-5  
MW-10  
MW-6MS  
MW-6MSD



## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## 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
5/2/14 (CCV-02MAY33)	Bromomethane	46.9	All samples in SDG 14-09680	J (all detects) UJ (all non-detects)	P
5/2/14 (CCV-02MAY34)	Pentachloroethane	95.2	All samples in SDG 14-09680	J (all detects) UJ (all non-detects)	P

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

## V. Blanks

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

## **VI. Surrogate Spikes**

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

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

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

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

## **XVI. Field Duplicates**

Samples MW-9 and Dup-5-2Q14, samples MW-1 and Dup-6-2Q14, and samples MW-15 and Dup-7-2Q14 were identified as field duplicates. No volatiles were detected in any of the samples.

## **XVII. Field Blanks**

Sample TB-9-5/1/14 was identified as a trip blank. No volatile contaminants were found.

**NASA JPL, 2Q2014**  
**Volatiles - Data Qualification Summary - SDG 14-09680**

SDG	Sample	Compound	Flag	A or P	Reason
14-09680	TB-9-5/1/14 MW-9 Dup-5-2Q14 MW-1 Dup-6-2Q14 MW-13 MW-6 MW-16 MW-15 Dup-7-2Q14 MW-5 MW-10	Bromomethane Pentachloroethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL, 2Q2014**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-09680**

No Sample Data Qualified in this SDG

Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

 Reported: 6/5/2014 5:05:54PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**
**EPA-524.2**

TB-9-5/1/14

Laboratory: BC Laboratories SDG: 14-09680  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409680-01 File ID: 02MAY44.D  
 Sampled: 05/01/14 06:00 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 00:45  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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

WJ

JVG 6/27/14



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-9-5/1/14

Laboratory: BC Laboratories SDG: 14-09680  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409680-01 File ID: 02MAY44.D  
 Sampled: 05/01/14 06:00 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 00:45  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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

JCS 6/27/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-9-5/1/14

Laboratory: BC Laboratories      SDG: 14-09680  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409680-01      File ID: 02MAY44.D  
Sampled: 05/01/14 06:00      Prepared: 05/02/14 14:01      Analyzed: 05/03/14 00:45  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXE0194      Sequence: 1406005      Calibration: 1404015      Instrument: MS-V5

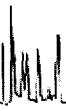
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	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 WJ
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	10.900	109	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8000	98.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1500	91.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	243557	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	79430	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	322251	7.52	308363	7.52	

JSA 6/2/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**TB-9-5/1/14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-01</u>
Sampled:	<u>05/01/14 06:00</u>	Prepared:	<u>05/02/14 14:01</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Jing G 6/22/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-9

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-02</u>	File ID: <u>02MAY45.D</u>	
Sampled: <u>05/01/14 08:21</u>	Prepared: <u>05/02/14 14:01</u>	Analyzed: <u>05/03/14 01:07</u>	
Solids:	Preparation: <u>EPA 5030 Water MS</u>	Initial/Final: <u>25 ml / 25 ml</u>	
Batch: <u>BXE0194</u>	Sequence: <u>1406005</u>	Calibration: <u>1404015</u>	Instrument: <u>MS-V5</u>

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 <i>W</i>
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

*WJ 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

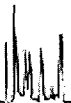
**EPA-524.2**

**MW-9**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-02</u>	File ID:	<u>02MAY45.D</u>		
Sampled:	<u>05/01/14 08:21</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 01:07</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

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

*JG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-9

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-02 File ID: 02MAY45.D  
Sampled: 05/01/14 08:21 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 01:07  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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 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	10.620	106	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.280	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0200	90.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	237642	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	74961	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	300978	7.51	308363	7.52	

JUG 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-9

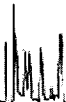
Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-02</u>	File ID:	<u>02MAY45.D</u>		
Sampled:	<u>05/01/14 08:21</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 01:07</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JUG 6/23/14*







Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

Dup-5-2Q14

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-03 File ID: 02MAY46.D  
Sampled: 05/01/14 08:41 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 01:30  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 Instrument: MS-V5

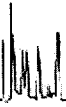
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	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 WJ
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	11.260	113	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.240	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1900	91.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	235673	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	77152	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	305524	7.51	308363	7.52	

JVS G / 27 / 14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**Dup-5-2Q14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-03</u>	File ID:	<u>02MAY46.D</u>		
Sampled:	<u>05/01/14 08:41</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 01:30</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Jrs 6/23/14*



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

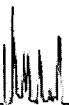
EPA-524.2

MW-1

Laboratory: BC Laboratories SDG: 14-09680  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409680-04 File ID: 02MAY47.D  
 Sampled: 05/01/14 10:15 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 01:53  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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 <i>US</i>
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

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-1

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-04 File ID: 02MAY47.D  
Sampled: 05/01/14 10:15 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 01:53  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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

309 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-1

Laboratory: BC Laboratories SDG: 14-09680  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409680-04 File ID: 02MAY47.D  
 Sampled: 05/01/14 10:15 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 01:53  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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 WJ
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	11.290	113	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.330	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.8000	88.0	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	233556	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	78360	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	296668	7.51	308363	7.52	

Jvg 6/23/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-1

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-04</u>	File ID:	<u>02MAY47.D</u>		
Sampled:	<u>05/01/14 10:15</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 01:53</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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ORGANIC ANALYSIS DATA SHEET

EPA-524.2

Dup-6-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-05</u>	File ID: <u>02MAY48.D</u>	
Sampled: <u>05/01/14 10:30</u>	Prepared: <u>05/02/14 14:01</u>	Analyzed: <u>05/03/14 02:15</u>	
Solids:	Preparation: <u>EPA 5030 Water MS</u>	Initial/Final: <u>25 ml / 25 ml</u>	
Batch: <u>BXE0194</u>	Sequence: <u>1406005</u>	Calibration: <u>1404015</u>	Instrument: <u>MS-V5</u>

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 <i>WS</i>
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

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

Dup-6-2Q14

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-05 File ID: 02MAY48.D  
Sampled: 05/01/14 10:30 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 02:15  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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

JCS 6/23/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

Dup-6-2Q14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-05</u>
		File ID:	<u>02MAY48.D</u>
Sampled:	<u>05/01/14 10:30</u>	Prepared:	<u>05/02/14 14:01</u>
		Analyzed:	<u>05/03/14 02:15</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
		Initial/Final:	<u>25 ml / 25 ml</u>
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

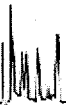
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	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 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	11.140	111	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.100	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1800	91.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	225444	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	77478	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	296577	7.51	308363	7.52	

JVG 6/23/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

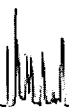
**EPA-524.2**

Dup-6-2Q14

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-05</u>	File ID:	<u>02MAY48.D</u>		
Sampled:	<u>05/01/14 10:30</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 02:15</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Jrg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-13

Laboratory: BC Laboratories      SDG: 14-09680  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409680-06      File ID: 02MAY49.D  
Sampled: 05/01/14 08:12      Prepared: 05/02/14 14:01      Analyzed: 05/03/14 02:38  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXE0194      Sequence: 1406005      Calibration: 1404015      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 <i>US</i>
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	0.96	
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	0.34	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

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

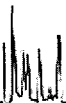
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-13

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-06 File ID: 02MAY49.D  
Sampled: 05/01/14 08:12 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 02:38  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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	2.1	
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	0.33	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

JVS 6/27/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-13

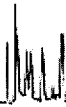
Laboratory: BC Laboratories SDG: 14-09680  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409680-06 File ID: 02MAY49.D  
 Sampled: 05/01/14 08:12 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 02:38  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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 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	11.100	111	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.110	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0100	90.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	234439	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	76567	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	297240	7.52	308363	7.52	

JCS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

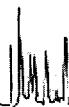
**EPA-524.2**

MW-13

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-06</u>	File ID:	<u>02MAY49.D</u>		
Sampled:	<u>05/01/14 08:12</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 02:38</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Jrs 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

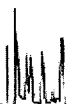
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-6

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-07 File ID: 02MAY38.D  
Sampled: 05/01/14 09:45 Prepared: 05/02/14 14:01 Analyzed: 05/02/14 22:29  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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 <i>US</i>
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	0.73	
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	0.24	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	0.11	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

*Jr9 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**MW-6**

Laboratory: BC Laboratories SDG: 14-09680  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409680-07 File ID: 02MAY38.D  
 Sampled: 05/01/14 09:45 Prepared: 05/02/14 14:01 Analyzed: 05/02/14 22:29  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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	1,1,1,2-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	4.2	
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

*Jrg 6/23/14*



Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr.
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-6

Laboratory: BC Laboratories SDG: 14-09680
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells
Matrix: Water Laboratory ID: 1409680-07 File ID: 02MAY38.D
Sampled: 05/01/14 09:45 Prepared: 05/02/14 14:01 Analyzed: 05/02/14 22:29
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 Instrument: MS-V5

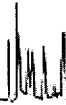
Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Shows surrogate compounds and their recovery percentages.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Lists internal standards used for calibration.

Handwritten signature and date: JG 6/23/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-6

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-07</u>	File ID:	<u>02MAY38.D</u>		
Sampled:	<u>05/01/14 09:45</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/02/14 22:29</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

JCS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

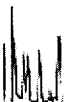
MW-16

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-08 File ID: 02MAY50.D  
Sampled: 05/01/14 10:55 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 03:00  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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	6.7	
75-25-2	Bromoform	1	6.1	
74-83-9	Bromomethane	1	0.25	U WJ
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	4.0	
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	8.4	
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

JVS 4/23/14





Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-16

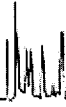
Laboratory: BC Laboratories SDG: 14-09680  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409680-08 File ID: 02MAY50.D  
 Sampled: 05/01/14 10:55 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 03:00  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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 <i>US</i>
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	11.130	111	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.020	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4400	94.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	225329	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	73771	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	297420	7.51	308363	7.52	

*JSC 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-16

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-08</u>	File ID:	<u>02MAY50.D</u>		
Sampled:	<u>05/01/14 10:55</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 03:00</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Log 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-15

Laboratory: BC Laboratories      SDG: 14-09680  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409680-09      File ID: 02MAY51.D  
Sampled: 05/01/14 12:10      Prepared: 05/02/14 14:01      Analyzed: 05/03/14 03:23  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXE0194      Sequence: 1406005      Calibration: 1404015      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	1,1,1,2-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

Jug 6/23/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**MW-15**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-09</u>	File ID:	<u>02MAY51.D</u>		
Sampled:	<u>05/01/14 12:10</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 03:23</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*Jug 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

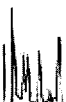
Dup-7-2Q14

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-10 File ID: 02MAY52.D  
Sampled: 05/01/14 12:25 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 03:45  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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

Jvg 6/23/14





Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

Dup-7-2Q14

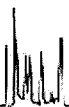
Laboratory: BC Laboratories SDG: 14-09680  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409680-10 File ID: 02MAY52.D  
 Sampled: 05/01/14 12:25 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 03:45  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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 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	11.150	112	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.060	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6500	96.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	226533	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	73219	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	294824	7.52	308363	7.52	

JCS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**Dup-7-2Q14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-10</u>
Sampled:	<u>05/01/14 12:25</u>	Prepared:	<u>05/02/14 14:01</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>
		File ID:	<u>02MAY52.D</u>
		Analyzed:	<u>05/03/14 03:45</u>
		Initial/Final:	<u>25 ml / 25 ml</u>

\* Values outside of QC limits

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

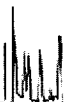
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-5

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-11 File ID: 02MAY53.D  
Sampled: 05/01/14 13:05 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 04:08  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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 <i>WS</i>
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

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

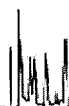
EPA-524.2

MW-5

Laboratory: BC Laboratories      SDG: 14-09680  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409680-11      File ID: 02MAY53.D  
Sampled: 05/01/14 13:05      Prepared: 05/02/14 14:01      Analyzed: 05/03/14 04:08  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXE0194      Sequence: 1406005      Calibration: 1404015      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

Jug 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-5

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-11 File ID: 02MAY53.D  
Sampled: 05/01/14 13:05 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 04:08  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 Instrument: MS-V5

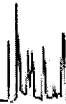
CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.38	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.4	U
60-29-7	Diethyl ether	1	0.21	U
97-63-2	Ethyl methacrylate	1	0.97	U
637-92-3	Ethyl t-butyl ether	1	0.18	U
67-72-1	Hexachloroethane	1	0.16	U
591-78-6	2-Hexanone	1	3.4	U
126-98-7	Methacrylonitrile	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 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	11.200	112	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.130	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2900	92.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	224913	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	72703	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	290485	7.52	308363	7.52	

Jug 6/23/14





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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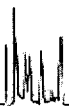
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-5

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-11</u>	File ID:	<u>02MAY53.D</u>		
Sampled:	<u>05/01/14 13:05</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 04:08</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-10

Laboratory: BC Laboratories      SDG: 14-09680  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409680-12      File ID: 02MAY54.D  
Sampled: 05/01/14 14:11      Prepared: 05/02/14 14:01      Analyzed: 05/03/14 04:30  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXE0194      Sequence: 1406005      Calibration: 1404015      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 WJ
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	0.72	
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	0.21	J
156-60-5	trans-1,2-Dichloroethene	1	0.21	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

JVS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-10

Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-12 File ID: 02MAY54.D  
Sampled: 05/01/14 14:11 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 04:30  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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	0.81	
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	6.6	
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

Jvg 6/22/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:05:54PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-10

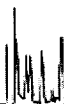
Laboratory: BC Laboratories SDG: 14-09680  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409680-12 File ID: 02MAY54.D  
Sampled: 05/01/14 14:11 Prepared: 05/02/14 14:01 Analyzed: 05/03/14 04:30  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0194 Sequence: 1406005 Calibration: 1404015 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 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	11.500	115	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9200	99.2	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3900	93.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	223465	6.73	232056	6.73	
Chlorobenzene-d5 (IS)	74709	9.73	80752	9.73	
1,4-Difluorobenzene (IS)	294485	7.51	308363	7.52	

Jvg 6/23/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:05:54PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-10

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09680</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409680-12</u>	File ID:	<u>02MAY54.D</u>		
Sampled:	<u>05/01/14 14:11</u>	Prepared:	<u>05/02/14 14:01</u>	Analyzed:	<u>05/03/14 04:30</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0194</u>	Sequence:	<u>1406005</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

LDC #: 31953B1

## VALIDATION COMPLETENESS WORKSHEET

Date: 6/16/14

SDG #: 14-09680

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: BK

2nd Reviewer: JVB

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.	Technical holding times	A	Sampling dates: 5/1/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 20? r <sup>2</sup>
IV.	Continuing calibration/ICV	SW	ICV/CCV ≤ 30?
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	AN	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	FD = 2+3, 4+5, 9+10
XVII.	Field blanks	ND	TB = 1

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: water

1	TB-9-5/1/14	11	MW-5	21		31	BX E0194-Blk1
2	MW-9	12	MW-10	22		32	
3	Dup-5-2Q14	13	MW-6MS	23		33	
4	MW-1	14	MW-6MSD	24		34	
5	Dup-6-2Q14	15		25		35	
6	MW-13	16		26		36	
7	MW-6	17		27		37	
8	MW-16	18		28		38	
9	MW-15	19		29		39	
10	Dup-7-2Q14	20		30		40	

## 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 chloride	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-Dichloroethane	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. <i>Pentachloroethane</i>
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.





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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 1, 2014  
**LDC Report Date:** June 18, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09680

**Sample Identification**

MW-9  
Dup-5-2Q14  
MW-1  
Dup-6-2Q14  
MW-13  
MW-6  
MW-16  
MW-15  
Dup-7-2Q14  
MW-5  
MW-10  
MW-6MS  
MW-6MSD  
MW-6DUP

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.7/200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron Magnesium	36.928 ug/L 0.038250 mg/L	MW-9 Dup-5-2Q14 MW-1 Dup-6-2Q14 MW-13 MW-6 MW-16 MW-15 Dup-7-2Q14 MW-5
ICB/CCB	Calcium Iron Sodium	0.021957 mg/L 48.254 ug/L 0.064344 mg/L	MW-9 Dup-5-2Q14 MW-1 Dup-6-2Q14 MW-13 MW-6 MW-16 MW-15 Dup-7-2Q14 MW-5
PB (prep blank)	Iron Sodium	7.0851 ug/L 0.050735 mg/L	MW-10
ICB/CCB	Iron Sodium	10.274 ug/L 0.051442 mg/L	MW-10

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Magnesium	0.044477 mg/L	MW-9 MW-6
ICB/CCB	Magnesium	0.046544 mg/L	Dup-5-2Q14 MW-1 Dup-6-2Q14 MW-13 MW-16 MW-15 Dup-7-2Q14 MW-5

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-9	Iron	96 ug/L	96U ug/L
Dup-5-2Q14	Iron	110 ug/L	110U ug/L
MW-1	Iron	12 ug/L	12U ug/L
Dup-6-2Q14	Iron	110 ug/L	110U ug/L
MW-15	Iron	62 ug/L	62U ug/L
Dup-7-2Q14	Iron	61 ug/L	61U ug/L
MW-5	Iron	100 ug/L	100U ug/L
MW-10	Iron	12 ug/L	12U ug/L

## V. ICP Interference Check Sample (ICS) Analysis

ICP Interference check sample analysis was not required by the method.

## VI. Matrix Spike/Matrix Spike Duplicates

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

## VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VIII. Laboratory Control Samples (LCS)

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

## IX. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

## X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

## XI. Sample Result Verification

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

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

## XIII. Field Duplicates

Samples MW-9 and Dup-5-2Q14, samples MW-1 and Dup-6-2Q14, and samples MW-15 and Dup-7-2Q14 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-9	Dup-5-2Q14	
Calcium	60 mg/L	59 mg/L	2
Chromium	0.50U ug/L	0.57 ug/L	200
Iron	96 ug/L	110 ug/L	14
Magnesium	19 ug/L	19	0
Potassium	3.4 mg/L	3.3 mg/L	3
Sodium	22 mg/L	22 mg/L	0

Analyte	Concentration		RPD
	MW-1	Dup-6-2Q14	
Arsenic	0.70U ug/L	0.75 ug/L	200
Calcium	53 mg/L	53 mg/L	0
Chromium	0.54 ug/L	1.1 ug/L	68
Iron	12 ug/L	110 ug/L	161
Magnesium	17 mg/L	17 mg/L	0
Potassium	3.3 mg/L	3.3 mg/L	0
Sodium	30 mg/L	30 mg/L	0

Analyte	Concentration		RPD
	MW-15	Dup-7-2Q14	
Arsenic	1 ug/L	0.96 ug/L	4
Calcium	59 mg/L	57 mg/L	3
Chromium	0.96 ug/L	1.4 ug/L	37
Iron	62 ug/L	61 ug/L	2
Magnesium	19 mg/L	19 mg/L	0
Potassium	3.2 mg/L	3 mg/L	6
Sodium	26 mg/L	34 mg/L	27

#### XIV. Field Blanks

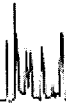
No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**  
**Metals - Data Qualification Summary - SDG 14-09680**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**Metals - Laboratory Blank Data Qualification Summary - SDG 14-09680**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09680	MW-9	Iron	96U ug/L	A
14-09680	Dup-5-2Q14	Iron	110U ug/L	A
14-09680	MW-1	Iron	12U ug/L	A
14-09680	Dup-6-2Q14	Iron	110U ug/L	A
14-09680	MW-15	Iron	62U ug/L	A
14-09680	Dup-7-2Q14	Iron	61U ug/L	A
14-09680	MW-5	Iron	100U ug/L	A
14-09680	MW-10	Iron	12U ug/L	A



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-9

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-02

File ID: PE2\_140508-154

Sampled: 05/01/14 08:21

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:36

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	96	1	B	EPA-200.7

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JVS 6/27/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

Dup-5-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-03</u>	File ID: <u>PE2_140508-158</u>	
Sampled: <u>05/01/14 08:41</u>	Prepared: <u>05/08/14 10:55</u>	Analyzed: <u>05/08/14 18:46</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0736</u>	Sequence: <u>1406520</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	110	1	B	EPA-200.7

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*jvd 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-1
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-04</u>	File ID: <u>PE2_140508-159</u>	
Sampled: <u>05/01/14 10:15</u>	Prepared: <u>05/08/14 10:55</u>	Analyzed: <u>05/08/14 18:49</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0736</u>	Sequence: <u>1406520</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	12	1	JB	EPA-200.7

*JVG 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

Dup-6-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-05</u>
Sampled: <u>05/01/14 10:30</u>	Prepared: <u>05/08/14 10:55</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>
Batch: <u>BXE0736</u>	Sequence: <u>1406520</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-OP2</u>
	File ID: <u>PE2 140508-160</u>
	Analyzed: <u>05/08/14 18:51</u>
	Initial/Final: <u>50 ml / 50 ml</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	110	1	B	EPA-200.7

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-13

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-06

File ID: PE2\_140508-161

Sampled: 05/01/14 08:12

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:54

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	830	1	B	EPA-200.7

JVG 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-6

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-07

File ID: PE2\_140508-148

Sampled: 05/01/14 09:45

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:21

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1600	1	B	EPA-200.7

*JVS 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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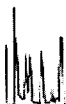
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-16

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-08</u>	File ID: <u>PE2 140508-162</u>	
Sampled: <u>05/01/14 10:55</u>	Prepared: <u>05/08/14 10:55</u>	Analyzed: <u>05/08/14 18:56</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0736</u>	Sequence: <u>1406520</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	10000	1	B	EPA-200.7

*Jug 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-15

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-09

File ID: PE2\_140508-163

Sampled: 05/01/14 12:10

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:59

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

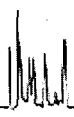
Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	62	1	B	EPA-200.7

u

*jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

Dup-7-2Q14

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-10

File ID: PE2\_140508-164

Sampled: 05/01/14 12:25

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 19:01

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	61	1	B	EPA-200.7

U

*JRS 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-5
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-11</u>
	File ID: <u>PE2_140508-165</u>
Sampled: <u>05/01/14 13:05</u>	Prepared: <u>05/08/14 10:55</u>
	Analyzed: <u>05/08/14 19:04</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>
	Initial/Final: <u>50 ml / 50 ml</u>
Batch: <u>BXE0736</u>	Sequence: <u>1406520</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	100	1	B	EPA-200.7

u

*JVS 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-10
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-12RE1</u>	File ID: <u>PE2_140513R1-036</u>	
Sampled: <u>05/01/14 14:11</u>	Prepared: <u>05/13/14 08:20</u>	Analyzed: <u>05/13/14 19:44</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE1082</u>	Sequence: <u>1406703</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	12	1	J	EPA-200.7

u

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-9

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-02

File ID: PE2 140508-154

Sampled: 05/01/14 08:21

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:36

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

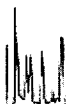
Sequence: 1406520

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
7440-23-5	Total Recoverable Sodium	22	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.4	1		EPA-200.7

*Jrg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-9

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-02</u>
Sampled: <u>05/01/14 08:21</u>	Prepared: <u>05/08/14 10:55</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>
Batch: <u>BXE0736</u>	Sequence: <u>1406518</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-OP2</u>
	File ID: <u>PE2_140509-162</u>
	Analyzed: <u>05/09/14 17:14</u>
	Initial/Final: <u>50 ml / 50 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	19	1	B	EPA-200.7

*JVS 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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### INORGANIC ANALYSIS DATA SHEET

EPA-200.7

Dup-5-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-03</u>	File ID: <u>PE2 140508-158</u>	
Sampled: <u>05/01/14 08:41</u>	Prepared: <u>05/08/14 10:55</u>	Analyzed: <u>05/08/14 18:46</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0736</u>	Sequence: <u>1406520</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	59	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	22	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

*Jvg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

Dup-5-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-03</u>	File ID: <u>PE2_140509-169</u>	
Sampled: <u>05/01/14 08:41</u>	Prepared: <u>05/08/14 10:55</u>	Analyzed: <u>05/09/14 17:36</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0736</u>	Sequence: <u>1406518</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	19	1	B	EPA-200.7

jvg  
6/22/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-1

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-04

File ID: PE2 140508-159

Sampled: 05/01/14 10:15

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:49

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

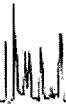
Sequence: 1406520

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
7440-23-5	Total Recoverable Sodium	30	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

Jvg 6/23/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-1**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-04

File ID: PE2 140509-170

Sampled: 05/01/14 10:15

Prepared: 05/08/14 10:55

Analyzed: 05/09/14 17:38

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406518

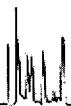
Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	17	1	B	EPA-200.7

*17.0 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**Dup-6-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-05

File ID: PE2\_140508-160

Sampled: 05/01/14 10:30

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:51

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

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
7440-23-5	Total Recoverable Sodium	30	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

*JVG 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

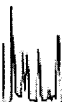
**EPA-200.7**

Dup-6-2Q14
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-05</u>	File ID: <u>PE2_140509-171</u>	
Sampled: <u>05/01/14 10:30</u>	Prepared: <u>05/08/14 10:55</u>	Analyzed: <u>05/09/14 17:40</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0736</u>	Sequence: <u>1406518</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	17	1	B	EPA-200.7

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-13

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-06

File ID: PE2\_140508-161

Sampled: 05/01/14 08:12

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:54

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

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
7440-23-5	Total Recoverable Sodium	42	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	4.1	1		EPA-200.7

*JTG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-13

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-06

File ID: PE2 140509-172

Sampled: 05/01/14 08:12

Prepared: 05/08/14 10:55

Analyzed: 05/09/14 17:43

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406518

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	42	1	B	EPA-200.7

Jrg 6/23/14

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-6

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-07</u>	File ID: <u>PE2_140508-148</u>	
Sampled: <u>05/01/14 09:45</u>	Prepared: <u>05/08/14 10:55</u>	Analyzed: <u>05/08/14 18:21</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0736</u>	Sequence: <u>1406520</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	140	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	51	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-6

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-07

File ID: PE2 140509-156

Sampled: 05/01/14 09:45

Prepared: 05/08/14 10:55

Analyzed: 05/09/14 17:00

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406518

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	48	1	B	EPA-200.7

*Jrg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-16

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-08

File ID: PE2\_140508-162

Sampled: 05/01/14 10:55

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:56

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

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
7440-23-5	Total Recoverable Sodium	42	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.9	1		EPA-200.7

*JVS 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-16

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-08</u>
Sampled: <u>05/01/14 10:55</u>	Prepared: <u>05/08/14 10:55</u>
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>
Batch: <u>BXE0736</u>	Sequence: <u>1406518</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>PE-OP2</u>
	File ID: <u>PE2_140509-173</u>
	Analyzed: <u>05/09/14 17:45</u>
	Initial/Final: <u>50 ml / 50 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	24	1	B	EPA-200.7

*JVG 6/23/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-15

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-09

File ID: PE2\_140508-163

Sampled: 05/01/14 12:10

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 18:59

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

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
7440-23-5	Total Recoverable Sodium	26	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-15

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-09

File ID: PE2\_140509-177

Sampled: 05/01/14 12:10

Prepared: 05/08/14 10:55

Analyzed: 05/09/14 18:01

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406518

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	19	1	B	EPA-200.7

*JUG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**Dup-7-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-10

File ID: PE2 140508-164

Sampled: 05/01/14 12:25

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 19:01

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

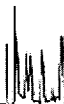
Sequence: 1406520

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	57	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

*JVS 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**Dup-7-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-10</u>	File ID: <u>PE2_140509-178</u>	
Sampled: <u>05/01/14 12:25</u>	Prepared: <u>05/08/14 10:55</u>	Analyzed: <u>05/09/14 18:03</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0736</u>	Sequence: <u>1406518</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	19	1	B	EPA-200.7

*JVS 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-5

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-11

File ID: PE2\_140508-165

Sampled: 05/01/14 13:05

Prepared: 05/08/14 10:55

Analyzed: 05/08/14 19:04

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406520

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	58	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	24	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.7	1		EPA-200.7

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-5

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-11

File ID: PE2\_140509-179

Sampled: 05/01/14 13:05

Prepared: 05/08/14 10:55

Analyzed: 05/09/14 18:06

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0736

Sequence: 1406518

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7439-95-4	Total Recoverable Magnesium	18	1	B	EPA-200.7

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-10

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-12RE1

File ID: PE2\_140513R1-036

Sampled: 05/01/14 14:11

Prepared: 05/13/14 08:20

Analyzed: 05/13/14 19:44

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE1082

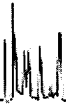
Sequence: 1406703

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	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.4	1		EPA-200.7

*JCS 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

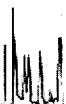
MW-9
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-02</u>	File ID: <u>PE EL2 140513-173</u>	
Sampled: <u>05/01/14 08:21</u>	Prepared: <u>05/09/14 08:30</u>	Analyzed: <u>05/14/14 01:09</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0841</u>	Sequence: <u>1406666</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-EL2</u>

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

*JVG 6/23/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**Dup-5-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-03

File ID: PE\_EL2\_140513-174

Sampled: 05/01/14 08:41

Prepared: 05/09/14 08:30

Analyzed: 05/14/14 01:12

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0841

Sequence: 1406666

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	0.57	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-1

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-04

File ID: PE\_EL2\_140513-175

Sampled: 05/01/14 10:15

Prepared: 05/09/14 08:30

Analyzed: 05/14/14 01:16

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0841

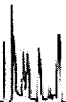
Sequence: 1406666

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	0.54	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

Dup-6-2Q14

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-05

File ID: PE EL2 140513-176

Sampled: 05/01/14 10:30

Prepared: 05/09/14 08:30

Analyzed: 05/14/14 01:19

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0841

Sequence: 1406666

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.75	1	J	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

*JYG 6/22/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-13

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-06

File ID: PE\_EL2\_140513-177

Sampled: 05/01/14 08:12

Prepared: 05/09/14 08:30

Analyzed: 05/14/14 01:22

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0841

Sequence:

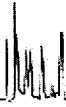
1406666

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	220	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Jig 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-6

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-07

File ID: PE\_EL2\_140513-165

Sampled: 05/01/14 09:45

Prepared: 05/09/14 08:30

Analyzed: 05/14/14 00:42

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0841

Sequence: 1406666

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	190	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Jug c/e 2/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:11:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-16

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-08

File ID: PE\_EL2\_140513-178

Sampled: 05/01/14 10:55

Prepared: 05/09/14 08:30

Analyzed: 05/14/14 01:26

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0841

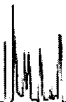
Sequence: 1406666

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	11	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	690	1		EPA-200.8
7439-92-1	Total Recoverable Lead	3.2	1		EPA-200.8

*JNG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-15

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-09

File ID: PE\_EL2\_140513-179

Sampled: 05/01/14 12:10

Prepared: 05/09/14 08:30

Analyzed: 05/14/14 01:29

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0841

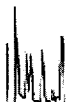
Sequence: 1406666

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	0.96	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**Dup-7-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-10

File ID: PE\_EL2\_140513-180

Sampled: 05/01/14 12:25

Prepared: 05/09/14 08:30

Analyzed: 05/14/14 01:32

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0841

Sequence: 1406666

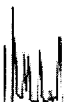
Calibration: UNASSIGNED

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	1.4	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*JVS 6/23/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-5

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-11

File ID: PE\_EL2\_140513-181

Sampled: 05/01/14 13:05

Prepared: 05/09/14 08:30

Analyzed: 05/14/14 01:36

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0841

Sequence: 1406666

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	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*JVS 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:11:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-10

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-12

File ID: PE\_EL2\_140512-090

Sampled: 05/01/14 14:11

Prepared: 05/09/14 08:30

Analyzed: 05/12/14 16:42

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0842

Sequence: 1406559

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	2.4	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*JYG 6/22/14*

LDC #: 31953B4

**VALIDATION COMPLETENESS WORKSHEET**

Date: 06/18/14

SDG #: 14-09680

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: SD

2nd Reviewer: OL

**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.	Technical holding times	A	Sampling dates: 5/1/14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	200.8 = Not Required
VI.	Matrix Spike Analysis	A	MS/D (12, 13)
VII.	Duplicate Sample Analysis	A	(6, 14)
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	ICP Serial Dilution	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(1, 2) (3, 4) (8, 9)
XIV.	Field Blanks	N	

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

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

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: Waters

1	MW-9	11	MW-10	21	31
2	Dup-5-2Q14	12	MW-6MS	22	32
3	MW-1	13	MW-6MSD	23	33
4	Dup-6-2Q14	14	MW-6DUP	24	34
5	MW-13	15		25	35
6	MW-6	16		26	36
7	MW-16	17		27	37
8	MW-15	18		28	38
9	Dup-7-2Q14	19		29	39
10	MW-5	20		30	40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



VALIDATION FINDINGS WORKSHEET  
PB/ICB/CCB QUALIFIED SAMPLES

METHOD: Trace metals (EPA Method 200.7/200.8)

Soil preparation factor applied: \_\_\_\_\_

Sample Concentration units, unless otherwise noted: \_\_\_\_\_

ug/L, mg/L

Associated Samples: 1-10

					Sample Identification										
Analyte	Maximum PB <sup>a</sup>	Maximum PB <sup>a</sup>	Maximum ICB/CCB <sup>a</sup>	Action Level	1	2	3	4	8	9	10				
Ca (mg/L)			0.021957	0.109785											
Fe (ug/L)		36.928	48.254	241.3	96	110	12	110	62	61	100				
Mg (mg/L)		0.038250		0.19125											
Na (mg/L)			0.064344	0.32172											

Sample Concentration units, unless otherwise noted: \_\_\_\_\_

ug/L, mg/L

Associated Samples: 11

					Sample Identification										
Analyte	Maximum PB <sup>a</sup>	Maximum PB <sup>a</sup>	Maximum ICB/CCB <sup>a</sup>	Action Level	11										
Fe (ug/L)		7.0851	10.274	51.37	12										
Na (mg/L)		0.050735	0.051442	0.25721											

Sample Concentration units, unless otherwise noted: \_\_\_\_\_

mg/L

Associated Samples: 1,6

					Sample Identification										
Analyte	Maximum PB <sup>a</sup>	Maximum PB <sup>a</sup>	Maximum ICB/CCB <sup>a</sup>	Action Level	no qual										
Mg (mg/L)			0.044477	0.222385											

Sample Concentration units, unless otherwise noted: \_\_\_\_\_

mg/L

Associated Samples: 2-5,7-10

					Sample Identification										
Analyte	Maximum PB <sup>a</sup>	Maximum PB <sup>a</sup>	Maximum ICB/CCB <sup>a</sup>	Action Level	no qual										
Mg (mg/L)			0.046544	0.23272											

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.

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** Metals (EPA Method 200.7/200.8)

Y N NA  
Y N NA

Were field duplicate pairs identified in this SDG?

Were target analytes detected in the field duplicate pairs?

Analyte	Concentration (ug/L)		RPD
	1	2	
Calcium (mg/L)	60	59	2
Chromium	0.50U	0.57	200
Iron	96	110	14
Magnesium (mg/L)	19	19	0
Potassium (mg/L)	3.4	3.3	3
Sodium (mg/L)	22	22	0

Analyte	Concentration (ug/L)		RPD
	3	4	
Arsenic	0.70U	0.75	200
Calcium (mg/L)	53	53	0
Chromium	0.54	1.1	68
Iron	12	110	161
Magnesium (mg/L)	17	17	0
Potassium (mg/L)	3.3	3.3	0
Sodium (mg/L)	30	30	0

LDC#: 31953B4

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 2 of 2  
Reviewer: BO  
2nd Reviewer: W

**METHOD:** Metals (EPA Method 200.7/200.8)

N NA  
 N NA

Were field duplicate pairs identified in this SDG?

Were target analytes detected in the field duplicate pairs?

Analyte	Concentration (ug/L)		RPD (≤50)
	8	9	
Arsenic	1	0.96	4
Calcium (mg/L)	59	57	3
Chromium	0.96	1.4	37
Iron	62	61	2
Magnesium (mg/L)	19	19	0
Potassium (mg/L)	3.2	3	6
Sodium (mg/L)	26	34	27

\\LDCFILESERVER\Validation\FIELD DUPLICATES\FD\_inorganic\31953B4.wpd





## Introduction

This data review covers 21 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as N, and Sulfate, EPA Method 365.1 for ortho-Phosphate as P, EPA Method 353.2 for Nitrite as N, EPA SW 846 Method 7196 for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
Dup-7-2Q14	Nitrate as N	15 days	48 hours	J (all detects) R (all non-detects)	A

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

## 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. Blanks

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

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Chloride Sulfate	0.254000 mg/L 0.329000 mg/L	MW-10
PB (prep blank)	Chloride Sulfate	0.21800 mg/L 0.38000 mg/L	MW-9 Dup-5-2Q14 MW-1 Dup-6-2Q14 MW-13 MW-6 MW-16 MW-15 MW-5
PB (prep blank)	Chloride Sulfate	0.20900 mg/L 0.33000 mg/L	Dup-7-2Q14
ICB/CCB	Chloride Sulfate	0.24700 mg/L 0.33500 mg/L	Dup-7-2Q14

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Chloride Sulfate	0.23900 mg/L 0.35200 mg/L	MW-9 Dup-5-2Q14 MW-1 Dup-6-2Q14 MW-13 MW-6 MW-16 MW-15 MW-5 MW-10

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks.

#### V. Matrix Spike/Matrix Spike Duplicates

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

#### VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

#### VII. Laboratory Control Samples

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

#### VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

#### IX. Overall Assessment of Data

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

#### X. Field Duplicates

Samples MW-9 and Dup-5-2Q14, samples MW-1 and Dup-6-2Q14, and samples MW-15 and Dup-7-2Q14 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-9	Dup-5-2Q14	
Bicarbonate	230 mg/L	230 mg/L	0
Total Alkalinity	190 mg/L	190 mg/L	0
Chloride	15 mg/L	15 mg/L	0
Nitrate as N	0.14 mg/L	0.15 mg/L	7
pH	7.32 units	7.39 units	1
Sulfate	49 mg/L	49 mg/L	0
TDS	310 mg/L	310 mg/L	0

Analyte	Concentration (mg/L)		RPD
	MW-1	Dup-6-2Q14	
Bicarbonate	250 mg/L	250 mg/L	0
Total Alkalinity	210 mg/L	210 mg/L	0
Chloride	12 mg/L	12 mg/L	0
pH	7.80 units	7.82 units	0
Sulfate	23 mg/L	24 mg/L	4
TDS	300 mg/L	290 mg/L	3

Analyte	Concentration (mg/L)		RPD
	MW-15	Dup-7-2Q14	
Bicarbonate	240 mg/L	240 mg/L	0
Total Alkalinity	200 mg/L	200 mg/L	0
Chloride	15 mg/L	14 mg/L	7
Nitrate as N	0.34 mg/L	0.34 mg/L	0
pH	7.61 units	7.61 units	0
Sulfate	44 mg/L	44 mg/L	0
TDS	310 mg/L	310 mg/L	0

## XI. Field Blanks

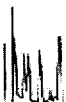
No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**  
**Wet Chemistry - Data Qualification Summary - SDG 14-09680**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason</b>
14-09680	Dup-7-2Q14	Nitrate as N	J (all detects) R (all non-detects)	A	Technical holding time

**NASA JPL, 2Q2014**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-09680**

No Sample Data Qualified in this SDG



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-9

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-02

File ID: Tiamo050214-080

Sampled: 05/01/14 08:21

Prepared: 05/02/14 07:00

Analyzed: 05/02/14 17:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0204

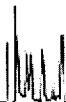
Sequence: 1406119

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

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**Dup-5-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-03

File ID: Tiamo050214-085

Sampled: 05/01/14 08:41

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 17:43

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0230

Sequence: 1406119

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

*jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

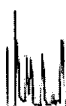
MW-1
------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-04</u>	File ID: <u>Tiamo050214-087</u>	
Sampled: <u>05/01/14 10:15</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 17:57</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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 CaCO <sub>3</sub>	210	1		SM-2320B

*JVS 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**Dup-6-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-05

File ID: Tiamo050214-088

Sampled: 05/01/14 10:30

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 18:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0230

Sequence: 1406119

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

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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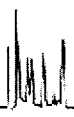
**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-13
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-06</u>	File ID: <u>Tiamo050214-089</u>	
Sampled: <u>05/01/14 08:12</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 18:10</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	240	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	200	2	D	SM-2320B

*jrg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-6

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-07

File ID: Tiamo050214-090

Sampled: 05/01/14 09:45

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 18:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0230

Sequence: 1406119

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	200	2	D	SM-2320B

*JVG 6/23/14*


 Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

 Reported: 6/5/2014 5:09:30PM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**
**SM-2320B**
**MW-16**

 Laboratory: BC Laboratories

 SDG: 14-09680

 Client: Tidewater Inc.

 Project: JPL- GW Monitoring Wells

 Matrix: Water

 Laboratory ID: 1409680-08

 File ID: Tiamo050214-091

 Sampled: 05/01/14 10:55

 Prepared: 05/02/14 13:40

 Analyzed: 05/02/14 18:21

 Solids: 0.00

 Preparation: No Prep

 Initial/Final: 50 ml / 50 ml

 Batch: BXE0230

Sequence:

1406119

 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 CaCO <sub>3</sub>	180	1		SM-2320B

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-15

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-09

File ID: Tiamo050214-092

Sampled: 05/01/14 12:10

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 18:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0230

Sequence:

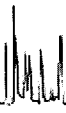
1406119

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

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

**Dup-7-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-10</u>	File ID: <u>Tiamo050214-093</u>	
Sampled: <u>05/01/14 12:25</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 18:34</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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 CaCO <sub>3</sub>	200	1		SM-2320B

*avg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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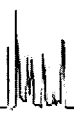
**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-11</u>	File ID: <u>Tiamo050214-094</u>	
Sampled: <u>05/01/14 13:05</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 18:41</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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 CaCO <sub>3</sub>	220	1		SM-2320B

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-10

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-12

File ID: Tiamo050214-095

Sampled: 05/01/14 14:11

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 18:48

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0230

Sequence: 1406119

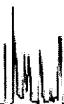
Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	240	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	190	2	D	SM-2320B

*JVG 6/23/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

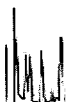
**EPA-300.0**

MW-9

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-02</u>	File ID: <u>E050114.seq-22</u>	
Sampled: <u>05/01/14 08:21</u>	Prepared: <u>05/01/14 23:00</u>	Analyzed: <u>05/01/14 23:31</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0185</u>	Sequence: <u>1406158</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC5</u>

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	0.14	1		EPA-300.0
14808-79-8	Sulfate	49	1		EPA-300.0

JVG 6/23/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**Dup-5-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-03

File ID: E050114.seq-23

Sampled: 05/01/14 08:41

Prepared: 05/01/14 23:00

Analyzed: 05/01/14 23:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0185

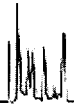
Sequence: 1406158

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	0.15	1		EPA-300.0
14808-79-8	Sulfate	49	1		EPA-300.0

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-04</u>
Sampled: <u>05/01/14 10:15</u>	File ID: <u>E050114.seq-24</u>
Solids: <u>0.00</u>	Prepared: <u>05/01/14 23:00</u>
Batch: <u>BXE0185</u>	Analyzed: <u>05/01/14 23:57</u>
Sequence: <u>1406158</u>	Initial/Final: <u>20 ml / 20 ml</u>
	Preparation: <u>No Prep</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>IC5</u>

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	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	23	1		EPA-300.0

*JCS 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

**Dup-6-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-05</u>	File ID: <u>E050114.seq-25</u>	
Sampled: <u>05/01/14 10:30</u>	Prepared: <u>05/01/14 23:00</u>	Analyzed: <u>05/02/14 00:11</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0185</u>	Sequence: <u>1406158</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC5</u>

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	0.025	1	U	EPA-300.0
14808-79-8	Sulfate	24	1		EPA-300.0

*JYG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-13

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-06

File ID: E050114.seq-28

Sampled: 05/01/14 08:12

Prepared: 05/01/14 23:00

Analyzed: 05/02/14 00:51

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0185

Sequence: 1406158

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	10	1		EPA-300.0
14808-79-8	Sulfate	150	1		EPA-300.0

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-6

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-07RE1

File ID: E050114.seq-40

Sampled: 05/01/14 09:45

Prepared: 05/01/14 23:00

Analyzed: 05/02/14 03:32

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0185

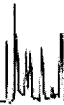
Sequence: 1406158

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	220	1		EPA-300.0

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

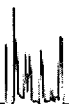
**EPA-300.0**

MW-16

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-08</u>	File ID: <u>E050114.seq-33</u>	
Sampled: <u>05/01/14 10:55</u>	Prepared: <u>05/01/14 23:00</u>	Analyzed: <u>05/02/14 01:58</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0185</u>	Sequence: <u>1406158</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC5</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	90	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

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-15

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-09

File ID: E050114.seq-34

Sampled: 05/01/14 12:10

Prepared: 05/01/14 23:00

Analyzed: 05/02/14 02:11

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0185

Sequence: 1406158

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	0.34	1		EPA-300.0
14808-79-8	Sulfate	44	1		EPA-300.0

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

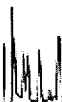
**Dup-7-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-10RE1</u>	File ID: <u>E051514A.seq-34</u>	
Sampled: <u>05/01/14 12:25</u>	Prepared: <u>05/16/14 01:00</u>	Analyzed: <u>05/16/14 08:37</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1479</u>	Sequence: <u>1406853</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC5</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	14	1		EPA-300.0
14797-55-8	Nitrate as N	0.34	1		EPA-300.0
14808-79-8	Sulfate	44	1		EPA-300.0

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*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-5

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-11

File ID: E050114.seq-36

Sampled: 05/01/14 13:05

Prepared: 05/01/14 23:00

Analyzed: 05/02/14 02:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0185

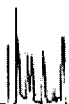
Sequence: 1406158

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	0.35	1		EPA-300.0
14808-79-8	Sulfate	44	1		EPA-300.0

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**MW-10**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-12

File ID: E050114.seq-37

Sampled: 05/01/14 14:11

Prepared: 05/01/14 18:00

Analyzed: 05/02/14 02:52

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0184

Sequence: 1406158

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	140	1	B	EPA-300.0
14797-55-8	Nitrate as N	16	1		EPA-300.0
14808-79-8	Sulfate	200	1		EPA-300.0

*JVS 6/22/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-9
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-02</u>	File ID: <u>140502 0753 NO2-012</u>	
Sampled: <u>05/01/14 08:21</u>	Prepared: <u>05/02/14 07:53</u>	Analyzed: <u>05/02/14 07:53</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0299</u>	Sequence: <u>1406131</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*JrS 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

**Dup-5-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-03</u>	File ID: <u>140502 0753 NO2-015</u>	
Sampled: <u>05/01/14 08:41</u>	Prepared: <u>05/02/14 07:53</u>	Analyzed: <u>05/02/14 07:58</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0299</u>	Sequence: <u>1406131</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*JVS 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-1
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-04</u>	File ID: <u>140502 0753 NO2-016</u>	
Sampled: <u>05/01/14 10:15</u>	Prepared: <u>05/02/14 07:53</u>	Analyzed: <u>05/02/14 07:58</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0299</u>	Sequence: <u>1406131</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Jr 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

**Dup-6-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-05</u> File ID: <u>140502.0753 NO2-030</u>
Sampled: <u>05/01/14 10:30</u>	Prepared: <u>05/02/14 07:53</u> Analyzed: <u>05/02/14 08:02</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u> Initial/Final: <u>20 ml / 20 ml</u>
Batch: <u>BXE0300</u> Sequence: <u>1406131</u>	Calibration: <u>UNASSIGNED</u> Instrument: <u>KONE-1</u>

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

*JVS 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**MW-13**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-06

File ID: 140502 0753 NO2-017

Sampled: 05/01/14 08:12

Prepared: 05/02/14 07:53

Analyzed: 05/02/14 07:58

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0299

Sequence: 1406131

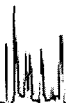
Calibration: UNASSIGNED

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

*Jvg 6/23/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-6

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-07

File ID: 140502 0753 NO2-035

Sampled: 05/01/14 09:45

Prepared: 05/02/14 07:53

Analyzed: 05/02/14 08:09

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0300

Sequence: 1406131

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

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-16

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-08

File ID: 140502 0753 NO2-031

Sampled: 05/01/14 10:55

Prepared: 05/02/14 07:53

Analyzed: 05/02/14 08:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0300

Sequence: 1406131

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

*jug 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-15

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-09</u>	File ID: <u>140502 0753 NO2-018</u>	
Sampled: <u>05/01/14 12:10</u>	Prepared: <u>05/02/14 07:53</u>	Analyzed: <u>05/02/14 07:58</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0299</u>	Sequence: <u>1406131</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

Dup-7-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-10</u>	File ID: <u>140502 0753 NO2-019</u>	
Sampled: <u>05/01/14 12:25</u>	Prepared: <u>05/02/14 07:53</u>	Analyzed: <u>05/02/14 07:58</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0299</u>	Sequence: <u>1406131</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-5

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-11

File ID: 140502 0753 NO2-028

Sampled: 05/01/14 13:05

Prepared: 05/02/14 07:53

Analyzed: 05/02/14 08:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0300

Sequence: 1406131

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

*JV9 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-10

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-12

File ID: 140502 0753 NO2-029

Sampled: 05/01/14 14:11

Prepared: 05/02/14 07:53

Analyzed: 05/02/14 08:02

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0300

Sequence: 1406131

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

*avg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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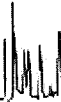
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-365.1**

MW-13
-------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-06</u>	File ID: <u>140502 0842 PO4-049</u>	
Sampled: <u>05/01/14 08:12</u>	Prepared: <u>05/02/14 08:42</u>	Analyzed: <u>05/02/14 09:03</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0298</u>	Sequence: <u>1406134</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.027	1		EPA-365.1

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-365.1**

**MW-16**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-08

File ID: 140502 0842 PO4-056

Sampled: 05/01/14 10:55

Prepared: 05/02/14 08:42

Analyzed: 05/02/14 09:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0298

Sequence: 1406134

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.22	1		EPA-365.1

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-9
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-02</u>	File ID: <u>140501 2033 CR6-026</u>	
Sampled: <u>05/01/14 08:21</u>	Prepared: <u>05/01/14 23:00</u>	Analyzed: <u>05/01/14 23:15</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0293</u>	Sequence: <u>1406107</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**Dup-5-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-03

File ID: 140501 2033 CR6-027

Sampled: 05/01/14 08:41

Prepared: 05/01/14 23:00

Analyzed: 05/01/14 23:15

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0293

Sequence: 1406107

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

*JVG 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-04</u>	File ID: <u>140501 2033 CR6-028</u>	
Sampled: <u>05/01/14 10:15</u>	Prepared: <u>05/01/14 23:00</u>	Analyzed: <u>05/01/14 23:15</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0293</u>	Sequence: <u>1406107</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*JVG 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

Dup-6-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-05</u>	File ID: <u>140501 2033 CR6-029</u>	
Sampled: <u>05/01/14 10:30</u>	Prepared: <u>05/01/14 23:00</u>	Analyzed: <u>05/01/14 23:15</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0293</u>	Sequence: <u>1406107</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-13

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-06

File ID: 140501 2033 CR6-032

Sampled: 05/01/14 08:12

Prepared: 05/01/14 23:00

Analyzed: 05/01/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0293

Sequence:

1406107

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

*jug 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

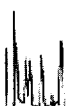
**EPA-7196**

MW-6
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-07</u>	File ID: <u>140501 2033 CR6-022</u>	
Sampled: <u>05/01/14 09:45</u>	Prepared: <u>05/01/14 23:00</u>	Analyzed: <u>05/01/14 23:15</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0293</u>	Sequence: <u>1406107</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0016	1	J	EPA-7196

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**MW-16**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-08

File ID: 140501 2033 CR6-033

Sampled: 05/01/14 10:55

Prepared: 05/01/14 23:00

Analyzed: 05/01/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0293

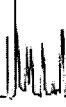
Sequence: 1406107

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0070	1		EPA-7196

*Jrg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-15

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-09

File ID: 140501 2033 CR6-034

Sampled: 05/01/14 12:10

Prepared: 05/01/14 23:00

Analyzed: 05/01/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0293

Sequence: 1406107

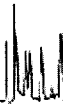
Calibration: UNASSIGNED

Instrument: KONE-1

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

*Jvg 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**Dup-7-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-10

File ID: 140501 2033 CR6-035

Sampled: 05/01/14 12:25

Prepared: 05/01/14 23:00

Analyzed: 05/01/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0293

Sequence: 1406107

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

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-5

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-11

File ID: 140501 2033 CR6-036

Sampled: 05/01/14 13:05

Prepared: 05/01/14 23:00

Analyzed: 05/01/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0293

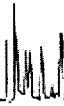
Sequence: 1406107

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

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-10

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-12

File ID: 140501 2033 CR6-037

Sampled: 05/01/14 14:11

Prepared: 05/01/14 20:33

Analyzed: 05/01/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0292

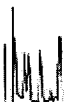
Sequence: 1406107

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

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-9

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-02

File ID: F051414.seq-9.0000.txt

Sampled: 05/01/14 08:21

Prepared: 05/14/14 12:30

Analyzed: 05/14/14 14:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1273

Sequence: 1406921

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*Jug 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

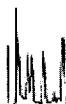
**EPA-314.0**

Dup-5-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-03</u>
Sampled: <u>05/01/14 08:41</u>	Prepared: <u>05/14/14 12:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXE1273</u>	Sequence: <u>1406921</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>IC6</u>
	File ID: <u>F051414.seq-10.0000.txt</u>
	Analyzed: <u>05/14/14 14:50</u>
	Initial/Final: <u>20 ml / 20 ml</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*jvs 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-1

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-04

File ID: F051414.seq-11.0000.txt

Sampled: 05/01/14 10:15

Prepared: 05/14/14 12:30

Analyzed: 05/14/14 15:04

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1273

Sequence: 1406921

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

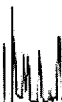
**EPA-314.0**

**Dup-6-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-05</u>	File ID: <u>F051414.seq-12.0000.txt</u>	
Sampled: <u>05/01/14 10:30</u>	Prepared: <u>05/14/14 12:30</u>	Analyzed: <u>05/14/14 15:17</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1273</u>	Sequence: <u>1406921</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*JUG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-13

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-06RE1</u>	File ID: <u>F051414.seq-34.0000.txt</u>	
Sampled: <u>05/01/14 08:12</u>	Prepared: <u>05/14/14 12:30</u>	Analyzed: <u>05/14/14 20:22</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1273</u>	Sequence: <u>1406921</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	200	20	D	EPA-314.0

*jvg 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-6

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-07

File ID: F051414.seq-16.0000.txt

Sampled: 05/01/14 09:45

Prepared: 05/14/14 12:30

Analyzed: 05/14/14 16:13

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1273

Sequence: 1406921

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.7	1	J	EPA-314.0

*JVS 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-16
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-08</u>	File ID: <u>F051414.seq-20.0000.txt</u>	
Sampled: <u>05/01/14 10:55</u>	Prepared: <u>05/14/14 12:30</u>	Analyzed: <u>05/14/14 17:08</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1273</u>	Sequence: <u>1406921</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-15

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-09

File ID: F051414.seq-21.0000.txt

Sampled: 05/01/14 12:10

Prepared: 05/14/14 12:30

Analyzed: 05/14/14 17:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1273

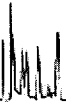
Sequence: 1406921

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**Dup-7-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-10</u>	File ID: <u>F051414.seq-24.0000.txt</u>	
Sampled: <u>05/01/14 12:25</u>	Prepared: <u>05/14/14 12:30</u>	Analyzed: <u>05/14/14 18:03</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1274</u>	Sequence: <u>1406921</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*jvg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

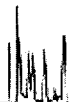
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-314.0**

MW-5
------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-11</u>	File ID: <u>F051414.seq-27.0000.txt</u>	
Sampled: <u>05/01/14 13:05</u>	Prepared: <u>05/14/14 12:30</u>	Analyzed: <u>05/14/14 18:45</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1274</u>	Sequence: <u>1406921</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC6</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*JVG 6/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-10

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-12

File ID: F051414.seq-28.0000.txt

Sampled: 05/01/14 14:11

Prepared: 05/14/14 12:30

Analyzed: 05/14/14 18:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1274

Sequence: 1406921

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.2	1		EPA-314.0

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-9

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-02

File ID: Tiamo050214-080

Sampled: 05/01/14 08:21

Prepared: 05/02/14 07:00

Analyzed: 05/02/14 17:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0204

Sequence: 1406119

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.32	1		EPA-150.1

*jvg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

Dup-5-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-03</u>	File ID: <u>Tiamo050214-085</u>	
Sampled: <u>05/01/14 08:41</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 17:43</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.39	1		EPA-150.1

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-1
------

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-04</u>	File ID: <u>Tiamo050214-087</u>	
Sampled: <u>05/01/14 10:15</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 17:57</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.80	1		EPA-150.1

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

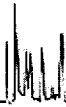
**EPA-150.1**

**Dup-6-2Q14**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-05</u>	File ID: <u>Tiamo050214-088</u>	
Sampled: <u>05/01/14 10:30</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 18:03</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.82	1		EPA-150.1

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

**MW-13**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-06

File ID: Tiamo050214-089

Sampled: 05/01/14 08:12

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 18:10

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0230

Sequence: 1406119

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.32	1		EPA-150.1

*jvg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

<b>MW-6</b>
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Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>	
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>	
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-07</u>	File ID: <u>Tiamo050214-090</u>
Sampled: <u>05/01/14 09:45</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 18:15</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>
		Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.20	1		EPA-150.1

*JUG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-16

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-08

File ID: Tiamo050214-091

Sampled: 05/01/14 10:55

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 18:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0230

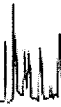
Sequence: 1406119

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.69	1		EPA-150.1

*Jvg 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

**MW-15**

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-09</u>	File ID: <u>Tiamo050214-092</u>	
Sampled: <u>05/01/14 12:10</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 18:28</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.61	1		EPA-150.1

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

**Dup-7-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-10

File ID: Tiamo050214-093

Sampled: 05/01/14 12:25

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 18:34

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0230

Sequence: 1406119

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.61	1		EPA-150.1

*JUG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-11</u>	File ID: <u>Tiamo050214-094</u>	
Sampled: <u>05/01/14 13:05</u>	Prepared: <u>05/02/14 13:40</u>	Analyzed: <u>05/02/14 18:41</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0230</u>	Sequence: <u>1406119</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.20	1		EPA-150.1

*JVG 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-10

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-12

File ID: Tiamo050214-095

Sampled: 05/01/14 14:11

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 18:48

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0230

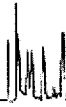
Sequence: 1406119

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.25	1		EPA-150.1

JVS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-9

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-02

File ID:

Sampled: 05/01/14 08:21

Prepared: 05/06/14 12:40

Analyzed: 05/06/14 12:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0402

Sequence:

1406453

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

*jug 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**Dup-5-2Q14**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-03

File ID:

Sampled: 05/01/14 08:41

Prepared: 05/06/14 12:40

Analyzed: 05/06/14 12:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0402

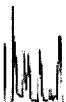
Sequence: 1406453

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

*ing c/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-1

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-04

File ID:

Sampled: 05/01/14 10:15

Prepared: 05/06/14 12:40

Analyzed: 05/06/14 12:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0402

Sequence: 1406453

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

*jug 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

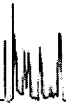
**EPA-160.1**

Dup-6-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-05</u>
Sampled: <u>05/01/14 10:30</u>	Prepared: <u>05/06/14 12:40</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXE0402</u>	Sequence: <u>1406453</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	290	2	D	EPA-160.1

*jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**MW-13**

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-06

File ID:

Sampled: 05/01/14 08:12

Prepared: 05/06/14 12:40

Analyzed: 05/06/14 12:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0402

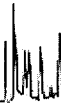
Sequence: 1406453

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

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-6

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-07</u>
Sampled: <u>05/01/14 09:45</u>	Prepared: <u>05/06/14 12:40</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXE0402</u>	Sequence: <u>1406453</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>
	File ID:
	Analyzed: <u>05/06/14 12:40</u>
	Initial/Final: <u>100 ml / 100 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	840	5	D	EPA-160.1

*Jvg 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

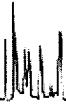
MW-16

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-08</u>
Sampled: <u>05/01/14 10:55</u>	Prepared: <u>05/06/14 12:40</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXE0402</u>	Sequence: <u>1406453</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>
	File ID:
	Analyzed: <u>05/06/14 12:40</u>
	Initial/Final: <u>100 ml / 100 ml</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	440	3.33	D	EPA-160.1

*JVS 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 5:09:30PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-15

Laboratory: BC Laboratories

SDG: 14-09680

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409680-09

File ID:

Sampled: 05/01/14 12:10

Prepared: 05/06/14 12:40

Analyzed: 05/06/14 12:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0402

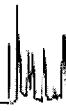
Sequence: 1406453

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

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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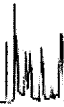
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

Dup-7-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-10</u>
Sampled: <u>05/01/14 12:25</u>	Prepared: <u>05/06/14 12:40</u>
Solids: <u>0.00</u>	Initial/Final: <u>100 ml / 100 ml</u>
Batch: <u>BXE0402</u>	Sequence: <u>1406453</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>

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

*Jvg c/22/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

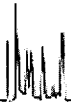
**EPA-160.1**

MW-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-11</u>
Sampled: <u>05/01/14 13:05</u>	Prepared: <u>05/06/14 12:40</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXE0402</u>	Sequence: <u>1406453</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	280	2	D	EPA-160.1

*JYG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 5:09:30PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-160.1**

MW-10

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09680</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409680-12</u>
Sampled: <u>05/01/14 14:11</u>	Prepared: <u>05/06/14 12:40</u>
Solids: <u>0.00</u>	Initial/Final: <u>100 ml / 100 ml</u>
Batch: <u>BXE0403</u>	Sequence: <u>1406453</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>MANUAL</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	820	5	D	EPA-160.1

*Jvg 6/23/14*

LDC #: 31953B6  
 SDG #: 14-09680  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6-18-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JG

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Nitrite-N (EPA Method 353.2), ortho-Phosphate as P (EPA Method 365.1), Hexavalent Chromium (EPA SW846 Method 7196), 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.	Technical holding times	SW	Sampling dates: 5-1-14
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 1+2, D = 3+4, D = 8+9
XI.	Field blanks	N	

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

Validated Samples:  
 all water

1	MW-9	11	MW-10	21	MW-10DUP	31	
2	Dup-5-2Q14	12	Dup-5-2Q14DUP	22		32	
3	MW-1	13	Dup-6-2Q14MS	23		33	
4	Dup-6-2Q14	14	Dup-6-2Q14MSD	24		34	
5	MW-13	15	Dup-6-2Q14DUP	25		35	
6	MW-6	16	MW-6MS	26		36	
7	MW-16	17	MW-6MSD	27		37	
8	MW-15	18	MW-6DUP	28		38	PBW 1
9	Dup-7-2Q14	19	MW-10MS	29		39	PBW 2
10	MW-5	20	MW-10MSD	30		40	PBW 3

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





**VALIDATION FINDINGS WORKSHEET**

**Blanks**

METHOD: Inorganics, Method See Cover

Conc. units: mg/L

Associated Samples: 11 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit													
	PB	ICB/CCB (mg/L)		No Qual's.												
Cl	0.254000		1.270													
SO4	0.329000		1.645													

Conc. units: mg/L

Associated Samples: 1-8,10 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit													
	PB	ICB/CCB (mg/L)		No Qual's.												
Cl	0.21800		1.090													
SO4	0.38000		1.900													

Conc. units: mg/L

Associated Samples: 9 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit													
	PB	ICB/CCB (mg/L)		No Qual's.												
Cl	0.20900	0.24700	1.235													
SO4	0.33000	0.33500	1.675													

Conc. units: mg/L

Associated Samples: 1-8,10,11 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit													
	PB	ICB/CCB (mg/L)		No Qual's.												
Cl		0.23900	1.195													
SO4		0.35200	1.760													

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

All contaminants within five times the method blank concentration were qualified as not detected, "U".



## Field Duplicates

Reviewer: MG

Method: Inorganics (see cover)

2nd Reviewer: JG

Analyte	Concentration (mg/L)		RPD	
	1	2		
Bicarbonate	230	230	0	
Total Alkalinity	190	190	0	
Chloride	15	15	0	
Nitrate as N	0.14	0.15	7	
pH (pH units)	7.32	7.39	1	
Sulfate	49	49	0	
TDS	310	310	0	

## Field Duplicates

Reviewer: MG

Method: Inorganics (see cover)

2nd Reviewer: JG

Analyte	Concentration (mg/L)		RPD	
	3	4		
Bicarbonate	250	250	0	
Total Alkalinity	210	210	0	
Chloride	12	12	0	
pH (pH units)	7.80	7.82	0	
Sulfate	23	24	4	
TDS	300	290	3	

## Field Duplicates

Reviewer: MG

Method: Inorganics (see cover)

2nd Reviewer: JF

Analyte	Concentration (mg/L)		RPD	
	8	9		
Bicarbonate	240	240	0	
Total Alkalinity	200	200	0	
Chloride	15	14	7	
Nitrate as N	0.34	0.34	0	
pH (pH units)	7.61	7.61	0	
Sulfate	44	44	0	
TDS	310	310	0	

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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 2, 2014  
**LDC Report Date:** June 19, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09784

**Sample Identification**

TB-10-5/2/14  
MW-8  
MW-7  
Dup-8-2Q14  
MW-8MS  
MW-8MSD

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## 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
5/6/14 (CCV-06MAY02)	Bromomethane	34.8	All samples in SDG 14-09784	J (all detects) UJ (all non-detects)	P
5/6/14 (CCV-06MAY03)	Methyl iodide	40.9	All samples in SDG 14-09784	J (all detects) UJ (all non-detects)	P
	Pentachloroethane	38.6		J (all detects) UJ (all non-detects)	

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

## V. Blanks

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

## **VI. Surrogate Spikes**

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

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

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

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

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

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

Not applicable.

## **X. Internal Standards**

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

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

Raw data were not reviewed for this SDG.

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

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

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

## **XVI. Field Duplicates**

Samples MW-7 and Dup-8-2Q14 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-7	Dup-8-2Q14	
Bromodichloromethane	0.37	0.38	3
Chloroform	5.7	5.9	3

## XVII. Field Blanks

Sample TB-10-5/2/14 was identified as a trip blank. No volatile contaminants were found.



**NASA JPL, 2Q2014**  
**Volatiles - Data Qualification Summary - SDG 14-09784**

SDG	Sample	Compound	Flag	A or P	Reason
14-09784	TB-10-5/2/14 MW-8 MW-7 Dup-8-2Q14	Bromomethane Methyl iodide Pentachloroethane	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL, 2Q2014**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-09784**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

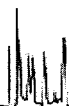
EPA-524.2

TB-10-5/2/14

Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-01 File ID: 06MAY13.D  
Sampled: 05/02/14 09:30 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 11:05  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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

JVG 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-10-5/2/14

Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-01 File ID: 06MAY13.D  
Sampled: 05/02/14 09:30 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 11:05  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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

4/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-10-5/2/14

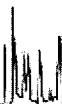
Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-01 File ID: 06MAY13.D  
Sampled: 05/02/14 09:30 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 11:05  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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	11.130	111	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.030	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0300	90.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	238434	6.73	234945	6.73	
Chlorobenzene-d5 (IS)	77384	9.73	82621	9.73	
1,4-Difluorobenzene (IS)	306503	7.52	314673	7.52	

UJ 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**TB-10-5/2/14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09784</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409784-01</u>
Sampled:	<u>05/02/14 09:30</u>	Prepared:	<u>05/05/14 14:04</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0290</u>	Sequence:	<u>1406185</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>
		File ID:	<u>06MAY13.D</u>
		Analyzed:	<u>05/06/14 11:05</u>
		Initial/Final:	<u>25 ml / 25 ml</u>

\* Values outside of QC limits

*Jrs 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-8

Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-02 File ID: 06MAY07.D  
Sampled: 05/02/14 10:22 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 08:49  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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 WJ
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

JUG 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**MW-8**

Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-02 File ID: 06MAY07.D  
Sampled: 05/02/14 10:22 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 08:49  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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	0.22	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

JCS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-8

Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-02 File ID: 06MAY07.D  
Sampled: 05/02/14 10:22 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 08:49  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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 WJ
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 WJ
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	11.250	112	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9600	99.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5300	95.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	230165	6.73	234945	6.73	
Chlorobenzene-d5 (IS)	71642	9.73	82621	9.73	
1,4-Difluorobenzene (IS)	297843	7.51	314673	7.52	

Jrg 6/23/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

**MW-8**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09784</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409784-02</u>	File ID:	<u>06MAY07.D</u>		
Sampled:	<u>05/02/14 10:22</u>	Prepared:	<u>05/05/14 14:04</u>	Analyzed:	<u>05/06/14 08:49</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXE0290</u>	Sequence:	<u>1406185</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

*JVS 6/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

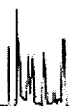
**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

MW-7

Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-03 File ID: 06MAY14.D  
Sampled: 05/02/14 11:31 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 11:27  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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 UD
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	5.7	
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

JVS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-7

Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-03 File ID: 06MAY14.D  
Sampled: 05/02/14 11:31 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 11:27  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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

Jvg 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-7

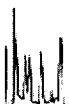
Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-03 File ID: 06MAY14.D  
Sampled: 05/02/14 11:31 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 11:27  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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	11.060	111	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9800	99.8	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.7300	87.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	232948	6.73	234945	6.73	
Chlorobenzene-d5 (IS)	76886	9.73	82621	9.73	
1,4-Difluorobenzene (IS)	305598	7.51	314673	7.52	

JVS 6/22/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

**EPA-524.2**

MW-7

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09784</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409784-03</u>
Sampled:	<u>05/02/14 11:31</u>	Prepared:	<u>05/05/14 14:04</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0290</u>	Sequence:	<u>1406185</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

\* Values outside of QC limits

JVS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

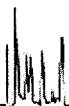
ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

Dup-8-2Q14

Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-04 File ID: 06MAY15.D  
Sampled: 05/02/14 11:46 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 11:50  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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	0.38	J
75-25-2	Bromoform	1	0.27	U
74-83-9	Bromomethane	1	0.25	U V5
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	5.9	
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

JCS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**

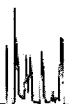
**EPA-524.2**

**Dup-8-2Q14**

Laboratory: BC Laboratories SDG: 14-09784  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409784-04 File ID: 06MAY15.D  
 Sampled: 05/02/14 11:46 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 11:50  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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

JVG 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:29:40AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

Dup-8-2Q14

Laboratory: BC Laboratories SDG: 14-09784  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409784-04 File ID: 06MAY15.D  
Sampled: 05/02/14 11:46 Prepared: 05/05/14 14:04 Analyzed: 05/06/14 11:50  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXE0290 Sequence: 1406185 Calibration: 1404015 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 <i>US</i>
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 <i>US</i>
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	11.600	116	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.060	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)	228957	6.73	234945	6.73	
Chlorobenzene-d5 (IS)	74441	9.73	82621	9.73	
1,4-Difluorobenzene (IS)	304104	7.51	314673	7.52	

*JVG 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/10/2014 11:29:40AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

**Dup-8-2Q14**

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09784</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409784-04</u>
Sampled:	<u>05/02/14 11:46</u>	Prepared:	<u>05/05/14 14:04</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
Batch:	<u>BXE0290</u>	Sequence:	<u>1406185</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>
		File ID:	<u>06MAY15.D</u>
		Analyzed:	<u>05/06/14 11:50</u>
		Initial/Final:	<u>25 ml / 25 ml</u>

\* Values outside of QC limits

*JUG 6/23/14*

LDC #: 31953C1

**VALIDATION COMPLETENESS WORKSHEET**

Date: 6/16/14

SDG #: 14-09784

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: JK2nd Reviewer: JNB**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.	Technical holding times	A	Sampling dates: 5/2/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 20% r <sup>2</sup>
IV.	Continuing calibration/ICV	SW	ICV/ICV ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentitatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	FD = 374
XVII.	Field blanks	ND	TB = 1

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: Water

1	TB-10-5/2/14	11		21		31	BXE0290-BLK
2	MW-8	12		22		32	
3	MW-7	13		23		33	
4	Dup-8-2Q14	14		24		34	
5	MW-8MS	15		25		35	
6	MW-8MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## 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 chloride	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. <i>Pentachloroethane</i>
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ. <i>Methyl iodide</i>
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	BBB. tert-Amyl methyl ether	VVVV.



## VALIDATION FINDINGS WORKSHEET

### Field Duplicates

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

- 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 ( <u>mg/L</u> )		RPD
P	0.37	0.38	3
K	5.7	5.9	3

Compound	Concentration (            )		RPD

Compound	Concentration (            )		RPD

Compound	Concentration (            )		RPD

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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 2, 2014  
**LDC Report Date:** June 17, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09784

**Sample Identification**

MW-8  
MW-7  
Dup-8-2Q14  
MW-8MS  
MW-8MSD  
MW-8DUP

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.7/200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron Magnesium Sodium	12.53 ug/L 0.027532 mg/L 0.16074 mg/L	All samples in SDG 14-09784
ICB/CCB	Iron Sodium	8.8994 ug/L 0.052526 mg/L	All samples in SDG 14-09784

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-8	Iron	27 ug/L	27U ug/L

## V. ICP Interference Check Sample (ICS) Analysis

ICP Interference check sample analysis was not required by the method.



## VI. Matrix Spike/Matrix Spike Duplicates

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

## VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VIII. Laboratory Control Samples (LCS)

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

## IX. Internal Standards (ICP-MS)

Raw data were not reviewed for this SDG.

## X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

## XI. Sample Result Verification

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

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

## XIII. Field Duplicates

Samples MW-7 and Dup-8-2Q14 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-7	Dup-8-2Q14	
Calcium	76 mg/L	76 mg/L	0
Chromium	15 ug/L	16 ug/L	6
Iron	520 ug/L	430 ug/L	19
Lead	0.10 ug/L	0.10U ug/L	200

Analyte	Concentration		RPD
	MW-7	Dup-8-2Q14	
Magnesium	26 mg/L	26 mg/L	0
Potassium	4.2 mg/L	4.1 mg/L	2
Sodium	41 mg/L	41 mg/L	0

#### XIV. Field Blanks

Sample EB-3-1/29/14 was identified as an equipment blank. No chromium was found.

**NASA JPL, 2Q2014  
Metals - Data Qualification Summary - SDG 14-09784**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09784	MW-8	Iron	27U ug/L	A

**NASA JPL, 2Q2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 14-09784**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:26:28AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-8

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID: PE2\_140513R-043

Sampled: 05/02/14 10:22

Prepared: 05/12/14 08:30

Analyzed: 05/13/14 18:40

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0952

Sequence: 1406734

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	57	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	20	1	B	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

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:26:28AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-7

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID: PE2\_140513R-044

Sampled: 05/02/14 11:31

Prepared: 05/12/14 08:30

Analyzed: 05/13/14 18:42

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0952

Sequence: 1406734

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	76	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	26	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	41	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	4.2	1		EPA-200.7

*Jrg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:26:28AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**Dup-8-2Q14**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-04

File ID: PE2\_140513R-045

Sampled: 05/02/14 11:46

Prepared: 05/12/14 08:30

Analyzed: 05/13/14 18:45

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0952

Sequence: 1406734

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	76	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	26	1	B	EPA-200.7
7440-23-5	Total Recoverable Sodium	41	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	4.1	1		EPA-200.7

*JVS 6/23/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/10/2014 11:26:28AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-8

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09784</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409784-02</u>	File ID: <u>PE2_140513R-043</u>	
Sampled: <u>05/02/14 10:22</u>	Prepared: <u>05/12/14 08:30</u>	Analyzed: <u>05/13/14 18:40</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0952</u>	Sequence: <u>1406734</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	27	1	J	EPA-200.7

u

JVS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:26:28AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-7

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID: PE2\_140513R-044

Sampled: 05/02/14 11:31

Prepared: 05/12/14 08:30

Analyzed: 05/13/14 18:42

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0952

Sequence: 1406734

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	520	1		EPA-200.7

*Jvq 6/23/14*





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/10/2014 11:26:28AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

Dup-8-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09784</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409784-04</u>	File ID: <u>PE2 140513R-045</u>	
Sampled: <u>05/02/14 11:46</u>	Prepared: <u>05/12/14 08:30</u>	Analyzed: <u>05/13/14 18:45</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0952</u>	Sequence: <u>1406734</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	430	1		EPA-200.7

*JVG 6/23/14*



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**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-8

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID: PE\_EL2 140513-066

Sampled: 05/02/14 10:22

Prepared: 05/12/14 09:00

Analyzed: 05/13/14 18:16

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0954

Sequence: 1406648

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	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-7

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID: PE\_EL2\_140513-086

Sampled: 05/02/14 11:31

Prepared: 05/12/14 09:00

Analyzed: 05/13/14 19:27

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0954

Sequence: 1406648

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	15	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	J	EPA-200.8

*JVG 6/23/14*



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Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

**Dup-8-2Q14**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-04

File ID: PE\_EL2\_140513-087

Sampled: 05/02/14 11:46

Prepared: 05/12/14 09:00

Analyzed: 05/13/14 19:30

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0954

Sequence: 1406648

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	16	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*JVG 6/23/14*

LDC #: 31953C4

## VALIDATION COMPLETENESS WORKSHEET

Date: 06/17/14

SDG #: 14-09784

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: SN

2nd Reviewer: CR

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.	Technical holding times	A	Sampling dates: 05/02/14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	200.8 = Not Required
VI.	Matrix Spike Analysis	A	MS/D
VII.	Duplicate Sample Analysis	A	As, Cr, Pb only
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	ICP Serial Dilution	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(2,3)
XIV.	Field Blanks	N	

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: water

1	MW-8	11		21		31	
2	MW-7	12		22		32	
3	Dup-8-2Q14	13		23		33	
4	(X1) MS	14		24		34	
5	↓ MSD	15		25		35	
6	↓ Dup	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: Duplicate = As, Cr, Pb only, MS/D = As, Cr, Pb only



VALIDATION FINDINGS WORKSHEET  
PB/ICB/CCB QUALIFIED SAMPLES

METHOD: Trace metals (EPA Method 200.7/200.8) Soil preparation factor applied: \_\_\_\_\_

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

Analyte	Maximum PB <sup>a</sup>	Maximum PB <sup>a</sup>	Maximum ICB/CCB <sup>a</sup>	Action Level	Sample Identification											
					1	2	3									
Fe (ug/L)		12.53	8.8994	62.65	27											
Mg (mg/L)		0.027532		0.13766												
Na (mg/L)		0.16074	.052526	0.8037												

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.

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** Metals (EPA Method 200.7/200.8)

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

Analyte	Concentration (ug/L)		RPD
	2	3	
Calcium (mg/L)	76	76	0
Chromium	15	16	6
Iron	520	430	19
Lead	0.10	0.10u	<sup>σ</sup> 200
Magnesium (mg/L)	26	26	0
Potassium (mg/L)	4.2	4.1	2
Sodium (mg/L)	41	41	0



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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 2, 2014  
**LDC Report Date:** June 23, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09784

**Sample Identification**

MW-8  
MW-7  
Dup-8-2Q14  
MW-8MS  
MW-8MSD  
MW-8DUP

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 353.2 for Nitrite as Nitrogen, EPA Method 365.1 for Orthophosphate as Phosphorus, EPA SW 846 Method 7196 for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
MW-8	pH	81.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
MW-7 Dup-8-2Q14	pH	80.25 hours	48 hours	J (all detects) UJ (all non-detects)	P

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

## II. 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. Blanks

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

Method Blank ID	Analyte	Concentration	Associated Samples
ICB/CCB	Chloride	0.12100 mg/L	All samples in SDG 14-09784
PB (prep blank)	Orthophosphate as P	0.004357 mg/L	MW-8 MW-7
ICB/CCB	Orthophosphate as P	0.004203 mg/L	MW-8 MW-7

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

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-8	Orthophosphate as P	0.0099 mg/L	0.0099U mg/L

## V. Matrix Spike/Matrix Spike Duplicates

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

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

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

## VIII. Sample Result Verification

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

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

## X. Field Duplicates

Samples MW-7 and Dup-8-2Q14 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-7	Dup-8-2Q14	
Bicarbonate	260 mg/L	260 mg/L	0
Total alkalinity	210 mg/L	210 mg/L	0
Chloride	82 mg/L	82 mg/L	0
Hexavalent chromium	0.0072 mg/L	0.0070 mg/L	3
Nitrate as N	1.2 mg/L	1.2 mg/L	0

Analyte	Concentration		RPD
	MW-7	Dup-8-2Q14	
Perchlorate	5.3 ug/L	5.2 ug/L	2
pH	7.47 pH units	7.51 pH units	1
Sulfate	44 mg/L	45 mg/L	2
Total dissolved solids	450 mg/L	440 mg/L	2

### **XI. Field Blanks**

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**

**Wet Chemistry - Data Qualification Summary - SDG 14-09784**

SDG	Sample	Analyte	Flag	A or P	Reason
14-09784	MW-8 MW-7 Dup-8-2Q14	pH	J (all detects) UJ (all non-detects)	P	Technical holding times

**NASA JPL, 2Q2014**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-09784**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09784	MW-8	Orthophosphate as P	0.0099U mg/L	A



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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**MW-8**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID: Tiamo050514-111

Sampled: 05/02/14 10:22

Prepared: 05/05/14 13:15

Analyzed: 05/05/14 19:42

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0339

Sequence: 1406274

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

JVS 6/23/14



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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-7

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID: Tiamo050514-112

Sampled: 05/02/14 11:31

Prepared: 05/05/14 13:15

Analyzed: 05/05/14 19:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0339

Sequence:

1406274

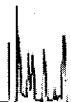
Calibration: UNASSIGNED

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

*JVG 6/23/14*





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Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

**Dup-8-2Q14**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-04

File ID: Tiamo050514-113

Sampled: 05/02/14 11:46

Prepared: 05/05/14 13:15

Analyzed: 05/05/14 19:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0339

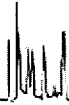
Sequence: 1406274

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

*Jrg 6/23/14*



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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-8

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID: A050314.seq-05

Sampled: 05/02/14 10:22

Prepared: 05/03/14 14:00

Analyzed: 05/03/14 15:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0295

Sequence:

1406172

Calibration: UNASSIGNED

Instrument: IC1

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	1.3	1		EPA-300.0
14808-79-8	Sulfate	37	1		EPA-300.0

JVG 6/23/14



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Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-7

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID: A050314.seq-09

Sampled: 05/02/14 11:31

Prepared: 05/03/14 14:00

Analyzed: 05/03/14 16:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0295

Sequence:

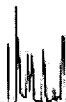
1406172

Calibration: UNASSIGNED

Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	82	1		EPA-300.0
14797-55-8	Nitrate as N	1.2	1		EPA-300.0
14808-79-8	Sulfate	44	1		EPA-300.0

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**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

**Dup-8-2Q14**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-04

File ID: A050314.seq-10

Sampled: 05/02/14 11:46

Prepared: 05/03/14 14:00

Analyzed: 05/03/14 16:32

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0295

Sequence: 1406172

Calibration: UNASSIGNED

Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	82	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

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Project: JPL- GW Monitoring Wells  
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Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-8

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID: 140503 1220 PO4-071

Sampled: 05/02/14 10:22

Prepared: 05/03/14 13:20

Analyzed: 05/03/14 13:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0354

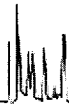
Sequence: 1406149

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

*JVG 6/23/14*



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Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

**MW-7**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID: 140503 1220 PO4-075

Sampled: 05/02/14 11:31

Prepared: 05/03/14 13:20

Analyzed: 05/03/14 13:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0354

Sequence:

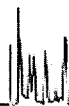
1406149

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

*JVS 6/23/14*



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Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
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Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

Dup-8-2Q14

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-04

File ID: 140503 1220 PO4-076

Sampled: 05/02/14 11:46

Prepared: 05/03/14 13:20

Analyzed: 05/03/14 13:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0354

Sequence: 1406149

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

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-365.1**

MW-8

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID: 140503 1220 PO4-035

Sampled: 05/02/14 10:22

Prepared: 05/03/14 12:20

Analyzed: 05/03/14 12:20

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0355

Sequence: 1406151

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.0099	1	J	EPA-365.1

U

JVG 6/23/14





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-365.1**

MW-7

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID: 140503 1220 PO4-039

Sampled: 05/02/14 11:31

Prepared: 05/03/14 12:20

Analyzed: 05/03/14 12:20

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0355

Sequence: 1406151

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.024	1		EPA-365.1

JMS 6/23/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/10/2014 11:27:43AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-8

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID: 140502 2256 CR6-005

Sampled: 05/02/14 10:22

Prepared: 05/02/14 22:56

Analyzed: 05/02/14 22:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0297

Sequence: 1406146

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00096	1	J	EPA-7196

*JVG 6/23/14*

Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/10/2014 11:27:43AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

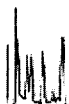
**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-7

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09784</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409784-03</u>	File ID: <u>140502 2256 CR6-009</u>	
Sampled: <u>05/02/14 11:31</u>	Prepared: <u>05/02/14 22:56</u>	Analyzed: <u>05/02/14 22:57</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0297</u>	Sequence: <u>1406146</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0072	1		EPA-7196

*Jv9 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

**Dup-8-2Q14**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-04

File ID: 140502 2256 CR6-010

Sampled: 05/02/14 11:46

Prepared: 05/02/14 22:56

Analyzed: 05/02/14 22:57

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0297

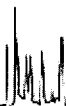
Sequence: 1406146

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0070	1		EPA-7196

*Jug 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**MW-8**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID: F051414A.seq-20.0000.txt

Sampled: 05/02/14 10:22

Prepared: 05/15/14 00:30

Analyzed: 05/15/14 17:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1396

Sequence:

1406923

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	47	5	D	EPA-314.0

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-7

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID: F051414A.seq-24.0000.txt

Sampled: 05/02/14 11:31

Prepared: 05/15/14 00:30

Analyzed: 05/15/14 17:56

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1396

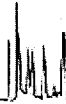
Sequence: 1406923

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	5.3	1		EPA-314.0

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

**Dup-8-2Q14**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-04

File ID: F051414A.seq-26.0000.txt

Sampled: 05/02/14 11:46

Prepared: 05/15/14 00:30

Analyzed: 05/15/14 18:23

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1396

Sequence:

1406923

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	5.2	1		EPA-314.0

*Jvg 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-8

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID: Tiamo050514-111

Sampled: 05/02/14 10:22

Prepared: 05/05/14 13:15

Analyzed: 05/05/14 19:42

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0339

Sequence: 1406274

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.45	1		EPA-150.1

J

*jsg 6/23/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-7

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID: Tiamo050514-112

Sampled: 05/02/14 11:31

Prepared: 05/05/14 13:15

Analyzed: 05/05/14 19:49

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0339

Sequence:

1406274

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.47	1		EPA-150.1

J

*JVG 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

**Dup-8-2Q14**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-04

File ID: Tiamo050514-113

Sampled: 05/02/14 11:46

Prepared: 05/05/14 13:15

Analyzed: 05/05/14 19:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE0339

Sequence: 1406274

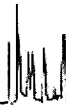
Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.51	1		EPA-150.1

J

JRS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**MW-8**

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-02

File ID:

Sampled: 05/02/14 10:22

Prepared: 05/07/14 12:30

Analyzed: 05/07/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0593

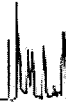
Sequence: 1406401

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

JVS 6/23/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-7

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-03

File ID:

Sampled: 05/02/14 11:31

Prepared: 05/07/14 12:30

Analyzed: 05/07/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0593

Sequence: 1406401

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

*JVS 6/23/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/10/2014 11:27:43AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

Dup-8-2Q14

Laboratory: BC Laboratories

SDG: 14-09784

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409784-04

File ID:

Sampled: 05/02/14 11:46

Prepared: 05/07/14 12:30

Analyzed: 05/07/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0593

Sequence: 1406401

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	440	3.33	D	EPA-160.1

*JG 6/23/14*

LDC #: 31953C6  
 SDG #: 14-09784  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III

Date: 6-19-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JVC

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Nitrite-N (EPA Method 353.2), ortho-Phosphate as P (EPA Method 365.1), Hexavalent Chromium (EPA SW846 Method 7196), 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.	Technical holding times	SW	Sampling dates: 5-2-14
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 2 + 3
XI.	Field blanks	N	

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

Validated Samples:  
 all water

1	MW-8	11		21		31	
2	MW-7	12		22		32	
3	Dup-8-2Q14	13		23		33	
4	MW-8MS	14		24		34	
5	MW-8MSD	15		25		35	
6	MW-8DUP	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	PBW

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_







**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

METHOD: Inorganics, Method See Cover

Conc. units: mg/L Associated Samples: all (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		No Qual's.											
Cl		0.12100	0.605												

Conc. units: mg/L Associated Samples: 1,2

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		1											
PO4-P	0.004357	0.004203	0.0218	0.0099											

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

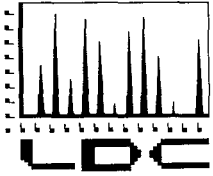
## Field Duplicates

Reviewer: MG

Method: Inorganics (see cover)

2nd Reviewer: JK

Analyte	Concentration (mg/L)		RPD	
	2	3		
Bicarbonate	260	260	0	
Total Alkalinity	210	210	0	
Chloride	82	82	0	
Hexavalent Chromium	0.0072	0.0070	3	
Nitrate as N	1.2	1.2	0	
Perchlorate (ug/L)	5.3	5.2	2	
pH (pH units)	7.47	7.51	1	
Sulfate	44	45	2	
TDS	450	440	2	



# 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

July 1, 2014

SUBJECT: NASA JPL, 2Q2014, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on June 16, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31982:

<u>SDG #</u>	<u>Fraction</u>
14-09433, 14-10817,	Volatiles, Metals, Wet Chemistry
14-10961, 14-11053	

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



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 29, 2014  
**LDC Report Date:** June 24, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09433

### Sample Identification

TB-7-4/29/14  
EB-7-4/29/14  
MW-12-5  
MW-12-4  
MW-12-3  
MW-12-2  
MW-12-1  
DUP-4-2Q14  
MW-21-5  
MW-21-4\*\*  
MW-21-3  
MW-21-2  
MW-21-1  
EB-7-4/29/14MS  
EB-7-4/29/14MSD

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of the presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 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.

## 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
4/30/14 (30APR03)	Bromomethane	48.8	TB-7-4/29/14 EB-7-4/29/14 MW-12-5 MW-12-4 MW-12-3 MW-12-2 MW-12-1 DUP-4-2Q14 MW-21-5 MW-21-4** EB-7-4/29/14MS EB-7-4/29/14MSD BXD2532-BLK1	J (all detects) UJ (all non-detects)	P

Date	Compound	%D	Associated Samples	Flag	A or P
4/30/14 (30APR04)	Acetone 2-Hexanone Methyl ethyl ketone Methyl isobutyl ketone Tetrahydrofuran	32.4 33.3 32.3 31.0 35.0	TB-7-4/29/14 EB-7-4/29/14 MW-12-5 MW-12-4 MW-12-3 MW-12-2 MW-12-1 DUP-4-2Q14 MW-21-5 MW-21-4** EB-7-4/29/14MS EB-7-4/29/14MSD BXD2532-BLK1	J (all detects) UJ (all non-detects)	P
4/30/14 (30APR33)	Bromomethane	33.5	MW-21-3 MW-21-2 MW-21-1 1405845-CCB2	J (all detects) UJ (all non-detects)	P
4/30/14 (30APR34)	Pentachloroethane  Tetrahydrofuran	93.8  31.5	MW-21-3 MW-21-2 MW-21-1 1405845-CCB2	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

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

#### V. Blanks

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

#### VI. Surrogate Spikes

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

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

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

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

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

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

Not applicable.



## X. Internal Standards

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

## XI. Target Compound Identifications

All target compound identifications were within validation criteria 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.

## XII. Compound Quantitation

All compound quantitations were within validation criteria 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. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria 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. System Performance

The system performance was 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.

## XV. Overall Assessment of Data

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

## XVI. Field Duplicates

Samples MW-12-1 and DUP-4-2Q14 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-12-1	DUP-4-2Q14	
Trichlorofluoromethane	0.15	0.15	0

## XVII. Field Blanks

No field blanks were identified in this SDG.

**NASA JPL, 2Q2014**

**Volatiles - Data Qualification Summary - SDG 14-09433**

SDG	Sample	Compound	Flag	A or P	Reason
14-09433	TB-7-4/29/14 EB-7-4/29/14 MW-12-5 MW-12-4 MW-12-3 MW-12-2 MW-12-1 DUP-4-2Q14 MW-21-5 MW-21-4**	Bromomethane Acetone 2-Hexanone Methyl ethyl ketone Methyl isobutyl ketone Tetrahydrofuran	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)
14-09433	MW-21-3 MW-21-2 MW-21-1	Bromomethane Pentachloroethane Tetrahydrofuran	J (all detects) UJ (all non-detects)	P	Continuing calibration (%D)

**NASA JPL, 2Q2014**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 14-09433**

No Sample Data Qualified in this SDG

**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.	Technical holding times	A	Sampling dates: 4/29/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 20%, R
IV.	Continuing calibration/ICV	SW	ICV/CoV ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	<del>A</del> A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	FD = 7 + 8 2
XVII.	Field blanks	ND	TB = 1 EB = <del>7</del>

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

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

*Water*

1	TB-7-4/29/14	11	2	MW-21-3	21	31	1	BXD2532-B2K1
2	EB-7-4/29/14	12	3	MW-21-2	22	32	2	1405845-CCB2
3	MW-12-5	13	2	MW-21-1	23	33		
4	MW-12-4	14		EB TB-7-4/29/14MS	24	34		
5	MW-12-3	15		EB TB-7-4/29/14MSD	25	35		
6	MW-12-2	16			26	36		
7	MW-12-1	17			27	37		
8	DUP-4-2Q14	18			28	38		
9	MW-21-5	19			29	39		
10	MW-21-4**	20			30	40		

**Method:** Volatiles (EPA Method 524.2)

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

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
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?	/			
<b>XI. Target compound identification</b>				
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?	/			
<b>XII. Compound quantitation/RLs</b>				
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?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?	/			
Were relative intensities of the major ions within $\pm$ 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	/			
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target compounds were detected in the field duplicates.	/			
<b>XVII. Field blanks</b>				
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 chloride	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-Dichloroethane	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-Dichloroethane, 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. <i>Pentachloroethane</i>
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ. <i>Tetrahydrofuran</i>
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR. <i>Acetone</i>
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS. <i>isobutyl ketone</i>
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.



**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** GC/MS VOA (EPA Method 524.2)

Y N N/A  
 Y N N/A

Were field duplicate pairs identified in this SDG?

Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( <u>µg/L</u> )		RPD
	7	8	
KK	0.15	0.15	0

Compound	Concentration (     )		RPD

Compound	Concentration (     )		RPD



LDC #: 31982A1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

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

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<sub>x</sub> = Area of CompoundC<sub>x</sub> = Concentration of compound,

S = Standard deviation of the RRFs,

A<sub>is</sub> = Area of associated internal standardC<sub>is</sub> = Concentration of internal standard


X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	4/8/2014	1,1-Dichloroethene (IS1)	0.804240	0.804240	0.7866686	0.7866686	13.1477	13.1477
	MS-V5		Trichloroethene (IS2)	0.330604	0.330604	0.3303824	0.3303824	9.748455	9.748462
			1,1,2,2-Tetrachloethane	0.544418	0.544418	0.5527675	0.5527675	2.742399	2.742366

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 #: 31982A1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 2 of 2  
 Reviewer: BR  
 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,

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

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 32/80 std)	Recalculated RRF (RRF 32/80 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	4/8/2014	Allyl chloride (IS1)	0.741567	0.741567	0.737045	0.737045	6.962034	6.962036
	MS-V5		Methyl methacrylate (IS2)	0.084568	0.084568	0.08916918	0.08916918	5.522741	5.522764
			Pentachloroethane (IS3)	0.638115	0.638115	0.5958182	0.5958182	14.21785	14.21786

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#: 31982A1

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: BR  
 2nd Reviewer: [Signature]

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:

Where:  
 $\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$   
 ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 Ax = Area of compound,  
 Cx = Concentration of compound,  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported % D	Recalculated %D
1	30APR03	4/30/2014	1,1-Dichloroethene (IS1)	0.786669	0.652768	0.652768	17.0	17.0
			Trichloroethene (IS2)	0.330382	0.3136463	0.3136463	5.1	5.1
			1,1,2,2-Tetrachloethane	0.552767	0.5502098	0.5502098	0.5	0.5
2	30APR04	4/30/2014	Allyl chloride (IS1)	0.737045	0.543339	0.543339	26.3	26.3
			Methyl methacrylate (IS2)	0.089169	0.07172529	0.07172529	19.6	19.6
			Pentachloroethane (IS3)	0.595818	0.6326802	0.6326802	6.2	6.2

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.

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**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: 10

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10.00	9.94	99.4	99.4	0
Bromofluorobenzene	↓	8.71	87.1	87.1	0
1,2-Dichlorobenzene-d4	↓	10.93	109	109	0
Dibromofluoromethane			8.2		

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					

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

**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 (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
H	25.00	25.00	0	25.710	24.340	103	103	97.4	97.4	5.47	5.47
S	↓	↓	↓	27.380	26.570	110	110	106	106	3.00	2.00
V	↓	↓	↓	23.360	23.180	93.4	93.4	92.7	92.7	0.774	0.774
CC	↓	↓	↓	26.970	26.040	108	108	104	104	3.51	3.51
DD	↓	↓	↓	26.150	26.490	105	105	106	106	1.29	1.29

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 #: 31982A1

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
 Reviewer: BR  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA Method 524.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory 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 = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS ID: 8XD2532-B51

Compound	Spike Added <i>(ug/L)</i>		Spiked Sample Concentration <i>(ug/L)</i>		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.00	↓	23.780	↓	95.1	95.1	[Large handwritten 'Z' mark]		[Large handwritten 'Z' mark]	
Trichloroethene	↓	↓	26.130	↓	105	105				
Benzene	↓	↓	22.220	↓	88.9	88.9				
Toluene	↓	↓	25.810	↓	103	103				
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.





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-7-4/29/14

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-01 File ID: 30APR19.D  
Sampled: 04/29/14 07:00 Prepared: 04/30/14 08:35 Analyzed: 04/30/14 16:11  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2532 Sequence: 1405845 Calibration: 1404015 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 <i>45</i>
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

*82 062714*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-7-4/29/14

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-01 File ID: 30APR19.D  
Sampled: 04/29/14 07:00 Prepared: 04/30/14 08:35 Analyzed: 04/30/14 16:11  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2532 Sequence: 1405845 Calibration: 1404015 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 UJ
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

2 06/27/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

TB-7-4/29/14

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-01 File ID: 30APR19.D  
Sampled: 04/29/14 07:00 Prepared: 04/30/14 08:35 Analyzed: 04/30/14 16:11  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2532 Sequence: 1405845 Calibration: 1404015 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 UJ
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U UJ
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U UJ
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 UJ
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	10.540	105	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9000	99.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.6400	86.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	250671	6.73	268558	6.73	
Chlorobenzene-d5 (IS)	83738	9.73	92364	9.73	
1,4-Difluorobenzene (IS)	338184	7.51	365124	7.51	

82062914





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 9:29:08AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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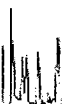
ORGANIC ANALYSIS DATA SHEET

EPA-524.2

EB-7-4/29/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-02</u>	File ID: <u>30APR20.D</u>	
Sampled: <u>04/29/14 07:15</u>	Prepared: <u>04/30/14 08:35</u>	Analyzed: <u>04/30/14 16:33</u>	
Solids:	Preparation: <u>EPA 5030 Water MS</u>	Initial/Final: <u>25 ml / 25 ml</u>	
Batch: <u>BXD2532</u>	Sequence: <u>1405845</u>	Calibration: <u>1404015</u>	Instrument: <u>MS-V5</u>

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 <i>UJ</i>
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



Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr.
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

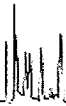
EB-7-4/29/14

Laboratory: BC Laboratories SDG: 14-09433
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells
Matrix: Water Laboratory ID: 1409433-02 File ID: 30APR20.D
Sampled: 04/29/14 07:15 Prepared: 04/30/14 08:35 Analyzed: 04/30/14 16:33
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml
Batch: BXD2532 Sequence: 1405845 Calibration: 1404015 Instrument: MS-V5

Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Shows monitoring data for surrogate compounds.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Shows data for internal standards.



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET  
EPA-524.2

MW-12-5

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-03 File ID: 30APR21.D  
Sampled: 04/29/14 08:00 Prepared: 04/30/14 08:35 Analyzed: 04/30/14 16:56  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2532 Sequence: 1405845 Calibration: 1404015 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	0.25	J
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.25	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

82062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-5

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-03 File ID: 30APR21.D  
Sampled: 04/29/14 08:00 Prepared: 04/30/14 08:35 Analyzed: 04/30/14 16:56  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2532 Sequence: 1405845 Calibration: 1404015 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	0.090	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 <i>UJ</i>
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: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-4

Laboratory: BC Laboratories      SDG: 14-09433  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409433-04      File ID: 30APR22.D  
Sampled: 04/29/14 08:40      Prepared: 04/30/14 08:35      Analyzed: 04/30/14 17:19  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2532      Sequence: 1405845      Calibration: 1404015      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 45
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	0.45	J
108-90-7	Chlorobenzene	1	0.093	U
75-00-3	Chloroethane	1	0.14	U
67-66-3	Chloroform	1	0.57	
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: 6/5/2014 9:29:08AM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-4

Laboratory: BC Laboratories SDG: 14-09433  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409433-04 File ID: 30APR22.D  
 Sampled: 04/29/14 08:40 Prepared: 04/30/14 08:35 Analyzed: 04/30/14 17:19  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2532 Sequence: 1405845 Calibration: 1404015 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 <i>UJ</i>
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U <i>UJ</i>
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U <i>UJ</i>
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 <i>UJ</i>
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	10.530	105	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8800	98.8	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.4200	84.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	244222	6.73	268558	6.73	
Chlorobenzene-d5 (IS)	82603	9.73	92364	9.73	
1,4-Difluorobenzene (IS)	321834	7.52	365124	7.51	

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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-3

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-05 File ID: 30APR23.D  
Sampled: 04/29/14 09:15 Prepared: 04/30/14 08:35 Analyzed: 04/30/14 17:41  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2532 Sequence: 1405845 Calibration: 1404015 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 <i>U5</i>
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	0.57	
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	0.072	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

82062714











Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

 Reported: 6/5/2014 9:29:08AM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

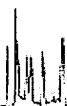
MW-12-2

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09433</u>
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409433-06</u>
		File ID:	<u>30APR24.D</u>
Sampled:	<u>04/29/14 09:45</u>	Prepared:	<u>04/30/14 08:35</u>
		Analyzed:	<u>04/30/14 18:04</u>
Solids:		Preparation:	<u>EPA 5030 Water MS</u>
		Initial/Final:	<u>25 ml / 25 ml</u>
Batch:	<u>BXD2532</u>	Sequence:	<u>1405845</u>
		Calibration:	<u>1404015</u>
		Instrument:	<u>MS-V5</u>

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 <i>UJ</i>
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U <i>UJ</i>
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U <i>UJ</i>
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 <i>UJ</i>
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	10.050	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0200	90.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	243493	6.73	268558	6.73	
Chlorobenzene-d5 (IS)	76978	9.73	92364	9.73	
1,4-Difluorobenzene (IS)	320288	7.51	365124	7.51	



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-1

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-07 File ID: 30APR25.D  
Sampled: 04/29/14 10:15 Prepared: 04/30/14 08:35 Analyzed: 04/30/14 18:26  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2532 Sequence: 1405845 Calibration: 1404015 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 <i>UJ</i>
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

*SC062714*





Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr.
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-12-1

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/29/14 10:15
Solids:
Batch: BXD2532
Sequence: 1405845
SDG: 14-09433
Project: JPL- GW Monitoring Wells
Laboratory ID: 1409433-07
Prepared: 04/30/14 08:35
Calibration: 1404015
File ID: 30APR25.D
Analyzed: 04/30/14 18:26
Initial/Final: 25 ml / 25 ml
Instrument: MS-V5

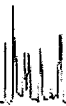
Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Shows monitoring data for surrogate compounds.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Shows internal standard data for Pentafluorobenzene, Chlorobenzene-d5, and 1,4-Difluorobenzene.







Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

DUP-4-2Q14

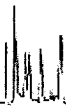
Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-08 File ID: 30APR26.D  
Sampled: 04/29/14 10:30 Prepared: 04/30/14 08:40 Analyzed: 04/30/14 18:49  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 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 UJ
126-98-7	Methacrylonitrile	1	1.7	U
78-93-3	Methyl ethyl ketone	1	2.5	U UJ
74-88-4	Methyl iodide	1	0.47	U
108-10-1	Methyl isobutyl ketone	1	2.1	U UJ
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 UJ
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	10.610	106	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.020	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.7400	87.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	226975	6.73	268558	6.73	
Chlorobenzene-d5 (IS)	78243	9.73	92364	9.73	
1,4-Difluorobenzene (IS)	306853	7.51	365124	7.51	

SC062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-5

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-09 File ID: 30APR27.D  
Sampled: 04/29/14 12:15 Prepared: 04/30/14 08:40 Analyzed: 04/30/14 19:12  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 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	6.4	
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

SL02114





Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
**EPA-524.2**

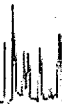
MW-21-5

Laboratory: BC Laboratories SDG: 14-09433  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409433-09 File ID: 30APR27.D  
 Sampled: 04/29/14 12:15 Prepared: 04/30/14 08:40 Analyzed: 04/30/14 19:12  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 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	0.78	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 <i>WJ</i>
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

82062714





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 9:29:08AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**ORGANIC ANALYSIS DATA SHEET**  
EPA-524.2

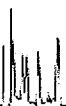
MW-21-4

Laboratory:	<u>BC Laboratories</u>	SDG:	<u>14-09433</u>				
Client:	<u>Tidewater Inc.</u>	Project:	<u>JPL- GW Monitoring Wells</u>				
Matrix:	<u>Water</u>	Laboratory ID:	<u>1409433-10</u>	File ID:	<u>30APR28.D</u>		
Sampled:	<u>04/29/14 13:00</u>	Prepared:	<u>04/30/14 08:40</u>	Analyzed:	<u>04/30/14 19:34</u>		
Solids:		Preparation:	<u>EPA 5030 Water MS</u>	Initial/Final:	<u>25 ml / 25 ml</u>		
Batch:	<u>BXD2412</u>	Sequence:	<u>1405845</u>	Calibration:	<u>1404015</u>	Instrument:	<u>MS-V5</u>

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 <i>U5</i>
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	7.6	
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	0.11	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: 6/5/2014 9:29:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr.
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-4

Laboratory: BC Laboratories SDG: 14-09433
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells
Matrix: Water Laboratory ID: 1409433-10 File ID: 30APR28.D
Sampled: 04/29/14 13:00 Prepared: 04/30/14 08:40 Analyzed: 04/30/14 19:34
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml
Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 Instrument: MS-V5

Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Shows monitoring data for surrogate compounds.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Shows data for internal standards.

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Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

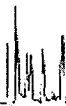
MW-21-3

Laboratory: BC Laboratories      SDG: 14-09433  
Client: Tidewater Inc.      Project: JPL- GW Monitoring Wells  
Matrix: Water      Laboratory ID: 1409433-11      File ID: 30APR43.D  
Sampled: 04/29/14 13:35      Prepared: 04/30/14 08:40      Analyzed: 05/01/14 01:13  
Solids:      Preparation: EPA 5030 Water MS      Initial/Final: 25 ml / 25 ml  
Batch: BXD2412      Sequence: 1405845      Calibration: 1404015      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	1.0	
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	0.17	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	0.37	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

SL06-714





Tidewater Inc.
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Powell, OH 43065

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Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-3

Laboratory: BC Laboratories SDG: 14-09433
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells
Matrix: Water Laboratory ID: 1409433-11 File ID: 30APR43.D
Sampled: 04/29/14 13:35 Prepared: 04/30/14 08:40 Analyzed: 05/01/14 01:13
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml
Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 Instrument: MS-V5

Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Shows monitoring data for surrogate compounds.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Shows data for internal standards.

82062714





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-2

Laboratory: BC Laboratories SDG: 14-09433  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409433-12 File ID: 30APR44.D  
 Sampled: 04/29/14 14:05 Prepared: 04/30/14 08:40 Analyzed: 05/01/14 01:36  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 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	0.37	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

82062714



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Powell, OH 43065

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Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-2

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-12 File ID: 30APR44.D  
Sampled: 04/29/14 14:05 Prepared: 04/30/14 08:40 Analyzed: 05/01/14 01:36  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 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	0.16	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	1.5	
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	0.33	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
Powell, OH 43065

Reported: 6/5/2014 9:29:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2nd Qtr.
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-2

Laboratory: BC Laboratories SDG: 14-09433
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells
Matrix: Water Laboratory ID: 1409433-12 File ID: 30APR44.D
Sampled: 04/29/14 14:05 Prepared: 04/30/14 08:40 Analyzed: 05/01/14 01:36
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml
Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 Instrument: MS-V5

Table with 5 columns: CAS NO., COMPOUND, DILUTION, CONC. (ug/L), Q. Lists various organic compounds and their concentrations.

Table with 6 columns: SYSTEM MONITORING COMPOUND, ADDED (ug/L), CONC (ug/L), % REC, QC LIMITS, Q. Shows monitoring data for surrogate compounds.

Table with 6 columns: INTERNAL STANDARD, AREA, RT, REF AREA, REF RT, Q. Shows data for internal standards.

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

ORGANIC ANALYSIS DATA SHEET

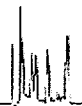
EPA-524.2

MW-21-1

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-13 File ID: 30APR45.D  
Sampled: 04/29/14 14:40 Prepared: 04/30/14 08:40 Analyzed: 05/01/14 01:59  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 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 <i>UJ</i>
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	1.0	
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

82062714



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Project Manager: David Conner

**ORGANIC ANALYSIS DATA SHEET**  
EPA-524.2

MW-21-1

Laboratory: BC Laboratories SDG: 14-09433  
Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
Matrix: Water Laboratory ID: 1409433-13 File ID: 30APR45.D  
Sampled: 04/29/14 14:40 Prepared: 04/30/14 08:40 Analyzed: 05/01/14 01:59  
Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 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	1.1	
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

*SL 062714*



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 3761 Attucks Drive  
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 Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET

EPA-524.2

MW-21-1

Laboratory: BC Laboratories SDG: 14-09433  
 Client: Tidewater Inc. Project: JPL- GW Monitoring Wells  
 Matrix: Water Laboratory ID: 1409433-13 File ID: 30APR45.D  
 Sampled: 04/29/14 14:40 Prepared: 04/30/14 08:40 Analyzed: 05/01/14 01:59  
 Solids: Preparation: EPA 5030 Water MS Initial/Final: 25 ml / 25 ml  
 Batch: BXD2412 Sequence: 1405845 Calibration: 1404015 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 <i>MS</i>
107-12-0	Propionitrile	1	4.2	U
109-99-9	Tetrahydrofuran	1	5.2	U <i>MS</i>
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	10.610	106	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.120	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.5500	85.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	230617	6.73	237337	6.73	
Chlorobenzene-d5 (IS)	78038	9.73	83266	9.73	
1,4-Difluorobenzene (IS)	303313	7.52	315572	7.52	

8/06/2014

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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 29, 2014  
**LDC Report Date:** June 30, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-09334

**Sample Identification**

EB-7-4/29/14  
MW-12-5  
MW-12-4  
MW-12-3  
MW-12-2  
MW-12-1  
DUP-4-2Q14  
MW-21-5  
MW-21-4\*\*  
MW-21-3  
MW-21-2  
MW-21-1  
EB-7-4/29/14MS  
EB-7-4/29/14MSD  
EB-7-4/29/14DUP  
MW-12-5MS  
MW-12-5MSD  
MW-12-5DUP  
MW-21-2MS  
MW-21-2MSD  
MW-21-2DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 21 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 200.7 and 200.8 for Metals. The metals analyzed were Arsenic, Calcium, Chromium, Iron, Lead, Magnesium, Potassium, and Sodium.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

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

## II. 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. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium	0.097583 mg/L	EB-7-4/29/14 MW-12-5 MW-12-4 MW-12-3 MW-12-2 MW-12-1 DUP-4-2Q14 MW-21-5 MW-21-4** MW-21-3
ICB/CCB	Iron	8.3359 ug/L	EB-7-4/29/14 MW-12-5 MW-12-4 MW-12-3 MW-12-2 MW-12-1 DUP-4-2Q14 MW-21-5 MW-21-4** MW-21-3
PB (prep blank)	Sodium	0.13370 mg/L	MW-21-2 MW-21-1
ICB/CCB	Calcium Iron Potassium Sodium	0.018903 mg/L 23.948 ug/L 0.21435 mg/L 0.39648 mg/L	MW-21-2 MW-21-1

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Sodium	0.054752 mg/L	EB-7-4/29/14 MW-12-5

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-7-4/29/14	Sodium	0.044 mg/L	0.044U mg/L
MW-12-4	Iron	29 ug/L	29U ug/L
MW-12-3	Iron	24 ug/L	24U ug/L
MW-21-5	Iron	6.5 ug/L	6.5U ug/L
MW-21-3	Iron	27 ug/L	27U ug/L
MW-21-1	Iron	80 ug/L	80U ug/L

## V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## VI. Matrix Spike Analysis

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

## VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VIII. Laboratory Control Samples (LCS)

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

## IX. Internal Standards

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

## X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

## XI. 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.

## XII. Overall Assessment of Data

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

## XIII. Field Duplicates

Samples MW-12-1 and DUP-4-2Q14 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-12-1	DUP-4-2Q14	
Calcium	55 ug/L	55 ug/L	0
Chromium	1.1 ug/L	1.1 ug/L	0
Iron	880 ug/L	940 ug/L	7
Magnesium	19 mg/L	19 mg/L	0
Potassium	3.3 mg/L	3.3 mg/L	0
Sodium	25 mg/L	26 mg/L	4

## XIV. Field Blanks

Sample EB-7-4/29/14 was identified as an equipment blank. No metal contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration (mg/L)
EB-7-4/29/14	Sodium	0.044

**NASA JPL, 2Q2014**

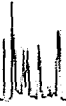
**Metals - Data Qualification Summary - SDG 14-09334**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**

**Metals - Laboratory Blank Data Qualification Summary - SDG 14-09334**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Modified Final Concentration</b>	<b>A or P</b>
14-09334	EB-7-4/29/14	Sodium	0.044U mg/L	A
14-09334	MW-12-4	Iron	29U ug/L	A
14-09334	MW-12-3	Iron	24U ug/L	A
14-09334	MW-21-5	Iron	6.5U ug/L	A
14-09334	MW-21-3	Iron	27U ug/L	A
14-09334	MW-21-1	Iron	80U ug/L	A



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-7-4/29/14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-02

File ID: PE2\_140506-213

Sampled: 04/29/14 07:15

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:06

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

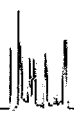
1406295

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

SL 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

EB-7-4/29/14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-02

File ID: PE\_EL2\_140505-225

Sampled: 04/29/14 07:15

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 04:29

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

Sequence:

1406230

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

SC 06274



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

EB-7-4/29/14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-02

File ID: PE2 140506-213

Sampled: 04/29/14 07:15

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:06

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

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	0.044 <i>u</i>	1	J <del>X</del>	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

*SC 062714*





Tidewater Inc.  
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Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-12-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-03

File ID: PE2\_140506-219

Sampled: 04/29/14 08:00

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:21

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

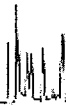
Sequence: 1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	95	1		EPA-200.7

82 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-12-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-03

File ID: PE\_EL2\_140505-196

Sampled: 04/29/14 08:00

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 02:55

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

Sequence: 1406230

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.9	1	J	EPA-200.8
7440-47-3	Total Recoverable Chromium	1.8	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

SC 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-12-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-03

File ID: PE2 140506-219

Sampled: 04/29/14 08:00

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:21

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence: 1406295

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	12	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	40	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

2 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-12-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-04

File ID: PE2 140506-223

Sampled: 04/29/14 08:40

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:31

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence: 1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	29 <i>u</i>	1	J	EPA-200.7

*SC 062714*



Tidewater Inc.  
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Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-12-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-04

File ID: PE\_EL2\_140505-226

Sampled: 04/29/14 08:40

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 04:32

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

Sequence: 1406230

Calibration: UNASSIGNED

Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.3	1		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

& 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-12-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-04

File ID: PE2\_140506-223

Sampled: 04/29/14 08:40

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:31

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

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	15	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	24	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.3	1		EPA-200.7

SC 06271F



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-12-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-05

File ID: PE2\_140506-224

Sampled: 04/29/14 09:15

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:33

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

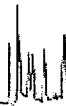
Sequence: 1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	24 U	1	J	EPA-200.7

SC 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-12-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-05

File ID: PE\_EL2\_140505-227

Sampled: 04/29/14 09:15

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 04:35

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

Sequence:

1406230

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	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

8 062714





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-12-3**

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-05

File ID: PE2\_140506-224

Sampled: 04/29/14 09:15

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:33

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

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	16	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	27	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

SC 062714



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/13/2014 11:07:08AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-12-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-06

File ID: PE2 140506-225

Sampled: 04/29/14 09:45

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:36

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	280	1		EPA-200.7

82062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-12-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-06

File ID: PE\_EL2\_140505-228

Sampled: 04/29/14 09:45

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 04:38

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

Sequence:

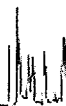
1406230

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	1.0	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

SC-062714



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/13/2014 11:07:08AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

### INORGANIC ANALYSIS DATA SHEET

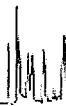
EPA-200.7

MW-12-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-06</u>	File ID: <u>PE2_140506-225</u>	
Sampled: <u>04/29/14 09:45</u>	Prepared: <u>05/02/14 09:00</u>	Analyzed: <u>05/06/14 20:36</u>	
Solids: <u>0.00</u>	Preparation: <u>EPA 200.2</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXE0227</u>	Sequence: <u>1406295</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>PE-OP2</u>

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	21	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

SC 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-12-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-07

File ID: PE2\_140506-226

Sampled: 04/29/14 10:15

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:38

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	880	1		EPA-200.7

SC 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-12-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-07

File ID: PE\_EL2\_140505-229

Sampled: 04/29/14 10:15

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 04:42

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

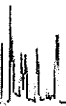
Sequence: 1406230

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

2062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**MW-12-1**

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-07

File ID: PE2 140506-226

Sampled: 04/29/14 10:15

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:38

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

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	19	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	25	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

2062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

DUP-4-2Q14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-08

File ID: PE2\_140506-227

Sampled: 04/29/14 10:30

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:41

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	940	1		EPA-200.7

SL 062714





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

DUP-4-2Q14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-08

File ID: PE\_EL2\_140505-230

Sampled: 04/29/14 10:30

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 04:45

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

Sequence: 1406230

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

SC062914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

**DUP-4-2Q14**

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-08

File ID: PE2\_140506-227

Sampled: 04/29/14 10:30

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:41

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

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	19	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	26	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

*Handwritten signature/initials*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.7**

MW-21-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-09

File ID: PE2 140506-228

Sampled: 04/29/14 12:15

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:43

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

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

8-06-2014



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-21-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-09

File ID: PE\_EL2\_140505-231

Sampled: 04/29/14 12:15

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 04:48

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

Sequence: 1406230

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	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

82062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-21-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-09

File ID: PE2 140506-228

Sampled: 04/29/14 12:15

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:43

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

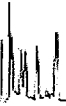
Sequence: 1406295

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	31	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	39	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.7	1		EPA-200.7

8C062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-10

File ID: PE2 140506-229

Sampled: 04/29/14 13:00

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:46

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence: 1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	400	1		EPA-200.7

SC06>714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-10

File ID: PE\_EL2 140505-232

Sampled: 04/29/14 13:00

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 04:51

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

Sequence: 1406230

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	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

82062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-10

File ID: PE2 140506-229

Sampled: 04/29/14 13:00

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:46

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	89	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	29	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	31	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.4	1		EPA-200.7

SC062714





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-21-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-11

File ID: PE2 140506-230

Sampled: 04/29/14 13:35

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:48

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

1406295

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	27 U	1	J	EPA-200.7

8606271f



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-21-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-11

File ID: PE\_EL2\_140505-233

Sampled: 04/29/14 13:35

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 04:55

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0327

Sequence: 1406230

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

82062914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-21-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-11

File ID: PE2 140506-230

Sampled: 04/29/14 13:35

Prepared: 05/02/14 09:00

Analyzed: 05/06/14 20:48

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0227

Sequence:

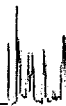
1406295

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	48	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	57	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.7	1		EPA-200.7

SC 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-12

File ID: PE2 140505-090

Sampled: 04/29/14 14:05

Prepared: 05/02/14 09:00

Analyzed: 05/05/14 18:16

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0228

Sequence:

1406204

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

8206271f



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-200.8**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-12

File ID: PE\_EL2\_140505-206

Sampled: 04/29/14 14:05

Prepared: 05/05/14 08:30

Analyzed: 05/06/14 03:27

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0328

Sequence: 1406232

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

82062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-12

File ID: PE2 140505-090

Sampled: 04/29/14 14:05

Prepared: 05/02/14 09:00

Analyzed: 05/05/14 18:16

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0228

Sequence: 1406204

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	49	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	56	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

82 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-21-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-13

File ID: PE2 140505-091

Sampled: 04/29/14 14:40

Prepared: 05/02/14 09:00

Analyzed: 05/05/14 18:19

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0228

Sequence: 1406204

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	80 U	1		EPA-200.7

*8/27/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.8**

MW-21-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-13

File ID: PE EL2 140505-244

Sampled: 04/29/14 14:40

Prepared: 05/05/14 10:43

Analyzed: 05/06/14 05:30

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0328

Sequence:

1406232

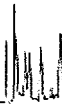
Calibration: UNASSIGNED

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	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

*Signature*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/13/2014 11:07:08AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-200.7**

MW-21-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-13

File ID: PE2\_140505-091

Sampled: 04/29/14 14:40

Prepared: 05/02/14 09:00

Analyzed: 05/05/14 18:19

Solids: 0.00

Preparation: EPA 200.2

Initial/Final: 50 ml / 50 ml

Batch: BXE0228

Sequence: 1406204

Calibration: UNASSIGNED

Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	99	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	33	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	40	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.2	1		EPA-200.7

SL 062714

LDC #: 31982A4

## VALIDATION COMPLETENESS WORKSHEET

Date: 6/19/14

SDG #: 14-09/8433

Level III/IV

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: SD

2nd Reviewer: CR

**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.	Technical holding times	A	Sampling dates: 04/29/14
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	200.8 = not required
VI.	Matrix Spike Analysis	A	MS/D
VII.	Duplicate Sample Analysis	A	Dup
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	A	Not reviewed for level 3
X.	ICP Serial Dilution	N	
XI.	Sample Result Verification	A	Not reviewed for Level III validation. (9)
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(6,7)
XIV.	Field Blanks	SW	(1) = EB

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

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

1	EB-7-4/29/14	11	MW-21-2	21	MW-21-2DUP	31	
2	MW-12-5	12	MW-21-1	22		32	
3	MW-12-4	13	EB-7-4/29/14MS	23		33	
4	MW-12-3	14	EB-7-4/29/14MSD	24		34	
5	MW-12-2	15	EB-7-4/29/14DUP	25		35	
6	MW-12-1	16	MW-12-5MS	26		36	
7	DUP-4-2Q14	17	MW-12-5MSD	27		37	
8	MW-21-5	18	MW-12-5DUP	28		38	
9	MW-21-4**	19	MW-21-2MS	29		39	
10	MW-21-3	20	MW-21-2MSD	30		40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

200.7/2008

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

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	/			
Were %RSD of isotopes in the tuning solution $\leq 5\%$ ?	/			
<b>III. Calibration</b>				
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 $> 0.995$ ?	/			
<b>IV. Blanks</b>				
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.	/			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	/			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	/			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
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) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\pm RL$ ( $\pm 2X RL$ for soil) was used for samples that were $\leq 5X$ the RL, including when only one of the duplicate sample values were $< 5X$ the RL.	/			
<b>VII. Laboratory control samples</b>				
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?	/			

VALIDATION FINDINGS CHECKLIST

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
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?			/	
<b>IX. ICP Serial Dilution</b>				
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.			/	
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target analytes were detected in the field duplicates.	/			
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target analytes were detected in the field blanks.	/			Na = No qual



VALIDATION FINDINGS WORKSHEET  
PB/ICB/CCB QUALIFIED SAMPLES

METHOD: Trace metals (EPA Method 200.7/200.8) Soil preparation factor applied: \_\_\_\_\_  
Sample Concentration units, unless otherwise noted: ug/L, mg/L Associated Samples: 1-10

					Sample Identification										
Analyte	Maximum PB <sup>a</sup>	Maximum PB <sup>a</sup>	Maximum ICB/CCB <sup>a</sup>	Action Level	1	3	4	8	10						
Fe (ug/L)			8.3359	41.6795		29	24	6.5	27						
Na (mg/L)		0.097583		0.487915	.044										

Sample Concentration units, unless otherwise noted: ug/L, mg/L Associated Samples: 11-12

					Sample Identification										
Analyte	Maximum PB <sup>a</sup>	Maximum PB <sup>a</sup>	Maximum ICB/CCB <sup>a</sup>	Action Level	12										
Ca (mg/L)			0.018903	0.094515											
Fe (ug/L)			23.948	119.74	80										
K (mg/L)			0.21435	1.07175											
Na (mg/L)		0.13370	0.39648	1.9824											

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1-2

					Sample Identification										
Analyte	Maximum PB <sup>a</sup>	Maximum PB <sup>a</sup>	Maximum ICB/CCB <sup>a</sup> (mg/L)	Action Level	1										
Na			0.054752	0.487915	See PB										

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#: 31982A4

### VALIDATION FINDINGS WORKSHEET Field Duplicates

Page: 1 of 1  
Reviewer: 39  
2nd Reviewer: a

METHOD: Metals (EPA Method 200.7/200.8)

N NA

Were field duplicate pairs identified in this SDG?

N NA

Were target analytes detected in the field duplicate pairs?

Analyte	Concentration (ug/L)		RPD <del>(<math>\leq 50</math>)</del>
	6	7	
Calcium	55	55	0
Chromium	1.1	1.1	0
Iron	880	940	7
Magnesium (mg/L)	19	19	0
Potassium (mg/L)	3.3	3.3	0
Sodium (mg/L)	25	26	4

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DUPLICATES\FD\_inorganic\31982A4.wpd





**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

**METHOD:** Trace Metals (EPA ~~SW-846~~ <sup>200.7/200.8</sup> Method ~~6010/6020/7000~~)

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

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       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	Reported	Acceptable (Y/N)
					%R	%R	
ICV 5/16/14 10:01	ICP (Initial calibration)	Fe (mg/L)	49.86 <del>2</del>	50	99.7	99.7	Y
ICV 5/15/14 16:29	ICP/MS (Initial calibration)	As	122.18	125	97.7	97.7	Y
	CVAA (Initial calibration)						
CCV 5/16/14 20:23	ICP (Continuing calibration)	Fe (mg/L)	51.13 <del>51.127</del>	50	102	102	Y
CCV 5/16/14 4:22	ICP/MS (Continuing calibration)	Pb	100.889	100	101	101	Y
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

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.

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**METHOD:** Trace Metals (EPA ~~SW 846~~ Method <sup>200.7/200.8</sup> ~~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:

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

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
ICS 51614 12:01	ICP interference check	Mg	492.1 mg/L	500 mg/L	98.4%R	98.4%R	Y
LS 51614 20:03	Laboratory control sample	Ca	10.09 mg/L	10.0 mg/L	101%R	101%R	Y
(13.11) (13) 20:13	Matrix spike	Na	(SSR-SR) 10.4856 <del>10.4856</del> mg/L	10.0 mg/L	105%R	105%R	Y
(18) 2:58	Duplicate	As	1.9280 mg/L	2.267 mg/L	RPD=16.2%	RPD=16.2%	Y
	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.



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** April 29, 2014  
**LDC Report Date:** June 27, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.

**Sample Delivery Group (SDG):** 14-09334

### Sample Identification

EB-7-4/29/14	MW-21-4DUP
MW-12-5	MW-21-3MS
MW-12-4	MW-21-3MSD
MW-12-3	MW-21-3DUP
MW-12-2	MW-21-2MS
MW-12-1	MW-21-2MSD
DUP-4-2Q14	MW-21-2DUP
MW-21-5	MW-21-1DUP
MW-21-4**	
MW-21-3	
MW-21-2	
MW-21-1	
EB-7-4/29/14MS	
EB-7-4/29/14MSD	
EB-7-4/29/14DUP	
MW-12-5MS	
MW-12-5MSD	
MW-12-5DUP	
MW-21-4MS	
MW-21-4MSD	

\*\*Indicates sample underwent EPA Level IV review

## Introduction

This data review covers 28 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, EPA Method 353.2 for Nitrite as Nitrogen, EPA Method 314.0 for Perchlorate, EPA Method 150.1 for pH, and EPA Method 160.1 for Total Dissolved Solids.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

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

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
MW-21-2	pH	15 days	48 hours	J (all detects) UJ (all non-detects)	P
MW-21-1	pH	15 days	48 hours	J (all detects) UJ (all non-detects)	P
MW-21-2	Alkalinity	15 days	14 days	J (all detects) UJ (all non-detects)	P
MW-21-1	Alkalinity	15 days	14 days	J (all detects) UJ (all non-detects)	P

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

## II. Initial Calibration

All criteria for the initial calibration were met.

## III. Calibration Verification

Calibration verification frequency and analysis criteria were met.

## IV. Blanks

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

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Chloride Sulfate	0.25200 mg/L 0.30800 mg/L	EB-7-4/29/14 MW-12-5 MW-12-4 MW-12-3 MW-12-2 MW-12-1 DUP-4-2Q14 MW-21-5 MW-21-4**

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Chloride Sulfate	0.17900 mg/L 0.34100 mg/L	MW-21-3 MW-21-2 MW-21-1
ICB/CCB	Chloride Sulfate	0.21600 mg/L 0.34400 mg/L	EB-7-4/29/14 MW-12-5 MW-12-4 MW-12-3 MW-12-2 MW-12-1 DUP-4-2Q14 MW-21-5 MW-21-4** MW-21-3
ICB/CCB	Chloride Sulfate	0.20200 mg/L 0.33500 mg/L	MW-21-1
ICB/CCB	Chloride Sulfate	0.20200 mg/L 0.33800 mg/L	MW-21-2

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs 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 method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-7-4/29/14	Chloride Sulfate	0.22 mg/L 0.34 mg/L	0.22U mg/L 0.34U mg/L

## V. Matrix Spike/Matrix Spike Duplicates

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

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC.

## VII. Laboratory Control Samples

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

### VIII. Sample Result Verification

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.

### IX. Overall Assessment of Data

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

### X. Field Duplicates

Samples MW-12-1 and DUP-4-2Q14 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD
	MW-12-1	DUP-4-2Q14	
Alkalinity	200 mg/L	200 mg/L	0
Bicarbonate	250 mg/L	240 mg/L	4
Chloride	18 mg/L	19 mg/L	5
pH	7.85 pH units	7.85 pH units	0
Nitrate-N	0.14 mg/L	0.14 mg/L	0
Sulfate	24 mg/L	25 mg/L	4
TDS	300 mg/L	280 mg/L	7

### XI. Field Blanks

Sample EB-7-4/29/14 was identified as an equipment blank. No hexavalent chromium was found with the following exceptions:

Blank ID	Analyte	Concentration
EB-7-4/29/14	pH Chloride Nitrate as N Sulfate	5.90 pH units 0.22 mg/L 0.028 mg/L 0.34 mg/L



**NASA JPL, 2Q2014**  
**Wet Chemistry - Data Qualification Summary - SDG 14-09334**

SDG	Sample	Analyte	Flag	A or P	Reason
14-09334	MW-21-2 MW-21-1	pH	J (all detects) UJ (all non-detects)	P	Technical holding time
14-09334	MW-21-2 MW-21-1	Alkalinity	J (all detects) UJ (all non-detects)	P	Technical holding time

**NASA JPL, 2Q2014**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14-09334**

SDG	Sample	Analyte	Modified Final Concentration	A or P
14-09334	EB-7-4/29/14	Chloride Sulfate	0.22U mg/L 0.34U mg/L	A



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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

EB-7-4/29/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-02</u>	File ID: <u>Tiamo043014-113</u>	
Sampled: <u>04/29/14 07:15</u>	Prepared: <u>04/30/14 07:00</u>	Analyzed: <u>04/30/14 18:37</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2576</u>	Sequence: <u>1405970</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

RL 062714



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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-12-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-03</u>	File ID: <u>Tiamo043014-115</u>	
Sampled: <u>04/29/14 08:00</u>	Prepared: <u>04/30/14 07:00</u>	Analyzed: <u>04/30/14 18:48</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2576</u>	Sequence: <u>1405970</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

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

1405970



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Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-12-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-04

File ID: Tiamo043014-116

Sampled: 04/29/14 08:40

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 18:54

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

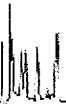
Sequence: 1405970

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

DL 262914



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

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-12-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-05

File ID: Tiamo043014-117

Sampled: 04/29/14 09:15

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence: 1405970

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

*SL 06/27/14*



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Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-12-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-06

File ID: Tiamo043014-118

Sampled: 04/29/14 09:45

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:06

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence: 1405970

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

SL 062714



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Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

### INORGANIC ANALYSIS DATA SHEET

SM-2320B

MW-12-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-07

File ID: Tiamo043014-119

Sampled: 04/29/14 10:15

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:12

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence:

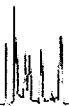
1405970

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

Σ 062114



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**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

DUP-4-2Q14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-08</u>
Sampled: <u>04/29/14 10:30</u>	Prepared: <u>04/30/14 07:00</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXD2576</u>	Sequence: <u>1405970</u>
	Calibration: <u>UNASSIGNED</u>
	File ID: <u>Tiamo043014-120</u>
	Analyzed: <u>04/30/14 19:18</u>
	Initial/Final: <u>50 ml / 50 ml</u>
	Instrument: <u>MET-1</u>

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

SC062914





Tidewater Inc.  
3761 Attucks Drive  
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Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-21-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-09

File ID: Tiamo043014-121

Sampled: 04/29/14 12:15

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:25

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence:

1405970

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	170	1		SM-2320B

8-062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-10

File ID: Tiamo043014-122

Sampled: 04/29/14 13:00

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence:

1405970

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

52762914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**SM-2320B**

MW-21-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-11

File ID: Tiamo043014-123

Sampled: 04/29/14 13:35

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence:

1405970

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

SL 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-12

File ID: Tiamo051414-052

Sampled: 04/29/14 14:05

Prepared: 05/14/14 07:30

Analyzed: 05/14/14 15:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE1214

Sequence:

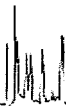
1406701

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	350 J	2	D	SM-2320B
3812-32-6	Carbonate	5.0 4J	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	290 J	2	D	SM-2320B

062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**SM-2320B**

MW-21-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-13

File ID: Tiamo051414-057

Sampled: 04/29/14 14:40

Prepared: 05/14/14 07:30

Analyzed: 05/14/14 15:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE1215

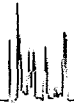
Sequence: 1406701

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	200 J	1		SM-2320B
3812-32-6	Carbonate	2.5 UJ	1	U	SM-2320B
---	Total Alkalinity as CaCO3	160 J	1		SM-2320B

8 062914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

EB-7-4/29/14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-02

File ID: E043014.seq-06

Sampled: 04/29/14 07:15

Prepared: 04/30/14 18:30

Analyzed: 04/30/14 19:47

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0019

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.22 <i>u</i>	1	JB	EPA-300.0
14797-55-8	Nitrate as N	0.028	1	J	EPA-300.0
14808-79-8	Sulfate	0.34 <i>u</i>	1	J	EPA-300.0

*SL 062714*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-12-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-03

File ID: E043014.seq-07

Sampled: 04/29/14 08:00

Prepared: 04/30/14 18:30

Analyzed: 04/30/14 20:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0019

Sequence:

1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	18	1	B	EPA-300.0
14797-55-8	Nitrate as N	2.1	1		EPA-300.0
14808-79-8	Sulfate	20	1		EPA-300.0

*8062714*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 9:32:18AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

EPA-300.0

MW-12-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-04</u>	File ID: <u>E043014.seq-11</u>	
Sampled: <u>04/29/14 08:40</u>	Prepared: <u>04/30/14 18:30</u>	Analyzed: <u>04/30/14 20:54</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0019</u>	Sequence: <u>1406069</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>IC5</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	15	1	B	EPA-300.0
14797-55-8	Nitrate as N	1.4	1		EPA-300.0
14808-79-8	Sulfate	33	1		EPA-300.0

2062114





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-12-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-05

File ID: E043014.seq-12

Sampled: 04/29/14 09:15

Prepared: 04/30/14 18:30

Analyzed: 04/30/14 21:07

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0019

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	15	1	B	EPA-300.0
14797-55-8	Nitrate as N	0.45	1		EPA-300.0
14808-79-8	Sulfate	29	1		EPA-300.0

SC 062914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-12-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-06

File ID: E043014.seq-13

Sampled: 04/29/14 09:45

Prepared: 04/30/14 18:30

Analyzed: 04/30/14 21:20

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0019

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	20	1	B	EPA-300.0
14797-55-8	Nitrate as N	1.5	1		EPA-300.0
14808-79-8	Sulfate	49	1		EPA-300.0

82062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-12-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-07

File ID: E043014.seq-16

Sampled: 04/29/14 10:15

Prepared: 04/30/14 18:30

Analyzed: 04/30/14 22:01

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0019

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	18	1	B	EPA-300.0
14797-55-8	Nitrate as N	0.14	1		EPA-300.0
14808-79-8	Sulfate	24	1		EPA-300.0

82062714



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 9:32:18AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

DUP-4-2Q14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-08

File ID: E043014.seq-17

Sampled: 04/29/14 10:30

Prepared: 04/30/14 18:30

Analyzed: 04/30/14 22:14

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0019

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	19	1	B	EPA-300.0
14797-55-8	Nitrate as N	0.14	1		EPA-300.0
14808-79-8	Sulfate	25	1		EPA-300.0

*Handwritten signature: R. D. 2014*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-21-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-09

File ID: E043014.seq-18

Sampled: 04/29/14 12:15

Prepared: 04/30/14 18:30

Analyzed: 04/30/14 22:27

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0019

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	80	1	B	EPA-300.0
14797-55-8	Nitrate as N	5.3	1		EPA-300.0
14808-79-8	Sulfate	130	1		EPA-300.0

82 262914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-10

File ID: E043014.seq-19

Sampled: 04/29/14 13:00

Prepared: 04/30/14 18:30

Analyzed: 04/30/14 22:41

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0019

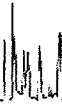
Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	77	1	B	EPA-300.0
14797-55-8	Nitrate as N	5.2	1		EPA-300.0
14808-79-8	Sulfate	130	1		EPA-300.0

SL062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-21-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-11

File ID: E043014.seq-22

Sampled: 04/29/14 13:35

Prepared: 04/30/14 18:30

Analyzed: 04/30/14 23:21

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0020

Sequence: 1406069

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	10	1		EPA-300.0
14808-79-8	Sulfate	160	1		EPA-300.0

SC 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-300.0**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-12RE1

File ID: E043014.seq-80

Sampled: 04/29/14 14:05

Prepared: 04/30/14 18:30

Analyzed: 05/01/14 12:18

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0020

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	160	1		EPA-300.0
14797-55-8	Nitrate as N	9.0	1		EPA-300.0
14808-79-8	Sulfate	180	1		EPA-300.0

2062714





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-300.0**

MW-21-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-13

File ID: E043014.seq-29

Sampled: 04/29/14 14:40

Prepared: 04/30/14 18:30

Analyzed: 05/01/14 00:55

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0020

Sequence: 1406069

Calibration: UNASSIGNED

Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	82	1		EPA-300.0
14797-55-8	Nitrate as N	11	1		EPA-300.0
14808-79-8	Sulfate	150	1		EPA-300.0

*SL062714*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 9:32:18AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

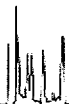
**EPA-353.2**

EB-7-4/29/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-02</u>
Sampled: <u>04/29/14 07:15</u>	Prepared: <u>04/30/14 07:53</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXE0116</u>	Sequence: <u>1406055</u>
	Calibration: <u>UNASSIGNED</u>
	File ID: <u>140430 0753 NO2-005</u>
	Analyzed: <u>04/30/14 07:53</u>
	Initial/Final: <u>20 ml / 20 ml</u>
	Instrument: <u>KONE-1</u>

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

8/26/2014



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-12-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-03

File ID: 140430 0753 NO2-009

Sampled: 04/29/14 08:00

Prepared: 04/30/14 07:53

Analyzed: 04/30/14 07:54

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0116

Sequence: 1406055

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

82062914



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 9:32:18AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-12-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-04</u>	File ID: <u>140430 0753 NO2-010</u>	
Sampled: <u>04/29/14 08:40</u>	Prepared: <u>04/30/14 07:53</u>	Analyzed: <u>04/30/14 07:54</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0116</u>	Sequence: <u>1406055</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

82062114



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-12-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-05

File ID: 140430 0753 NO2-011

Sampled: 04/29/14 09:15

Prepared: 04/30/14 07:53

Analyzed: 04/30/14 07:54

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0116

Sequence: 1406055

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

*206574*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-12-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-06

File ID: 140430 0753 NO2-012

Sampled: 04/29/14 09:45

Prepared: 04/30/14 07:53

Analyzed: 04/30/14 07:54

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0116

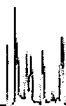
Sequence: 1406055

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

8/26/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 9:32:18AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-12-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-07</u>	File ID: <u>140430 0753 NO2-015</u>	
Sampled: <u>04/29/14 10:15</u>	Prepared: <u>04/30/14 07:53</u>	Analyzed: <u>04/30/14 07:59</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0116</u>	Sequence: <u>1406055</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

N 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

DUP-4-2Q14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-08

File ID: 140430 0753 NO2-016

Sampled: 04/29/14 10:30

Prepared: 04/30/14 07:53

Analyzed: 04/30/14 07:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0116

Sequence: 1406055

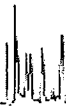
Calibration: UNASSIGNED

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

SL062714





Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 9:32:18AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
--	--

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-21-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-09</u>	File ID: <u>140430 0753 NO2-017</u>	
Sampled: <u>04/29/14 12:15</u>	Prepared: <u>04/30/14 07:53</u>	Analyzed: <u>04/30/14 07:59</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE0116</u>	Sequence: <u>1406055</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

SL062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-10

File ID: 140430 0753 NO2-018

Sampled: 04/29/14 13:00

Prepared: 04/30/14 07:53

Analyzed: 04/30/14 07:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0116

Sequence:

1406055

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

*SL 062714*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-353.2**

MW-21-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-11

File ID: 140430 0753 NO2-019

Sampled: 04/29/14 13:35

Prepared: 04/30/14 07:53

Analyzed: 04/30/14 07:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0116

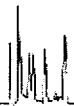
Sequence: 1406055

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

*SL062914*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-12

File ID: 140430 0753 NO2-022

Sampled: 04/29/14 14:05

Prepared: 04/30/14 07:55

Analyzed: 04/30/14 07:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0117

Sequence: 1406055

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.022	1	J	EPA-353.2

*8/22/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-353.2**

MW-21-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-13

File ID: 140430 0753 NO2-028

Sampled: 04/29/14 14:40

Prepared: 04/30/14 07:55

Analyzed: 04/30/14 08:03

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0117

Sequence: 1406055

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.015	1	J	EPA-353.2

*Signature*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

EB-7-4/29/14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-02

File ID: F050914.seq-32.0000.txt

Sampled: 04/29/14 07:15

Prepared: 05/09/14 20:00

Analyzed: 05/10/14 03:54

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0936

Sequence: 1406565

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

82062914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-12-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-03

File ID: F050914.seq-33.0000.txt

Sampled: 04/29/14 08:00

Prepared: 05/09/14 20:00

Analyzed: 05/10/14 04:08

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0936

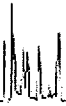
Sequence: 1406565

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

2062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-12-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-04

File ID: F050914.seq-34.0000.txt

Sampled: 04/29/14 08:40

Prepared: 05/09/14 20:00

Analyzed: 05/10/14 04:22

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0936

Sequence: 1406565

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

*2062714*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-12-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-05

File ID: F050914.seq-47.0000.txt

Sampled: 04/29/14 09:15

Prepared: 05/09/14 20:00

Analyzed: 05/12/14 10:28

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0936

Sequence:

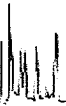
1406565

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

8206714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-12-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-06

File ID: F050914.seq-36.0000.txt

Sampled: 04/29/14 09:45

Prepared: 05/09/14 20:00

Analyzed: 05/10/14 04:50

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0936

Sequence: 1406565

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

*SC 062714*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-12-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-07

File ID: F050914.seq-39.0000.txt

Sampled: 04/29/14 10:15

Prepared: 05/09/14 20:00

Analyzed: 05/10/14 05:31

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0936

Sequence: 1406565

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

SC 262714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

DUP-4-2Q14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-08

File ID: F050914.seq-40.0000.txt

Sampled: 04/29/14 10:30

Prepared: 05/09/14 20:00

Analyzed: 05/10/14 05:45

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0936

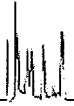
Sequence: 1406565

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

8/06/2014



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-21-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-09

File ID: F050914.seq-41.0000.txt

Sampled: 04/29/14 12:15

Prepared: 05/09/14 20:00

Analyzed: 05/10/14 05:59

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0936

Sequence: 1406565

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.45	1	U	EPA-314.0

SL262714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-10

File ID: F050914.seq-53.0000.txt

Sampled: 04/29/14 13:00

Prepared: 05/12/14 09:00

Analyzed: 05/12/14 11:51

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0937

Sequence: 1406565

Calibration: UNASSIGNED

Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.2	1	J	EPA-314.0

*SL062714*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-21-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-11

File ID: F050914.seq-59.0000.txt

Sampled: 04/29/14 13:35

Prepared: 05/12/14 09:00

Analyzed: 05/12/14 13:14

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0937

Sequence: 1406565

Calibration: UNASSIGNED

Instrument: IC6

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

82062914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-314.0**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-12

File ID: F050914.seq-60.0000.txt

Sampled: 04/29/14 14:05

Prepared: 05/12/14 09:00

Analyzed: 05/12/14 13:28

Solids: .000

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE0937

Sequence: 1406565

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

SL262714





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

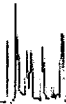
**INORGANIC ANALYSIS DATA SHEET****EPA-314.0**

MW-21-1

Laboratory: BC LaboratoriesSDG: 14-09433Client: Tidewater Inc.Project: JPL- GW Monitoring WellsMatrix: WaterLaboratory ID: 1409433-13File ID: F050914.seq-61.0000.txtSampled: 04/29/14 14:40Prepared: 05/12/14 09:00Analyzed: 05/12/14 13:42Solids: 0.00Preparation: No PrepInitial/Final: 20 ml / 20 mlBatch: BXE0937Sequence: 1406565Calibration: UNASSIGNEDInstrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	12	1		EPA-314.0

8/20/14



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/5/2014 9:32:18AM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

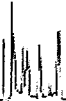
**EPA-150.1**

EB-7-4/29/14

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-09433</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1409433-02</u>	File ID: <u>Tiamo043014-113</u>	
Sampled: <u>04/29/14 07:15</u>	Prepared: <u>04/30/14 07:00</u>	Analyzed: <u>04/30/14 18:37</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>50 ml / 50 ml</u>	
Batch: <u>BXD2576</u>	Sequence: <u>1405970</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>MET-1</u>

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.90	1		EPA-150.1

*Submitt*



Tidewater Inc.  
 3761 Attucks Drive  
 Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
 Project: JPL- GW Monitoring Wells  
 Project Number: 2nd Qtr.  
 Project Manager: David Conner

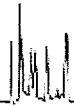
**INORGANIC ANALYSIS DATA SHEET****EPA-150.1**

MW-12-5

Laboratory: BC LaboratoriesSDG: 14-09433Client: Tidewater Inc.Project: JPL- GW Monitoring WellsMatrix: WaterLaboratory ID: 1409433-03File ID: Tiamo043014-115Sampled: 04/29/14 08:00Prepared: 04/30/14 07:00Analyzed: 04/30/14 18:48Solids: 0.00Preparation: No PrepInitial/Final: 50 ml / 50 mlBatch: BXD2576Sequence: 1405970Calibration: UNASSIGNEDInstrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.01	1		EPA-150.1

8-06-14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-12-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-04

File ID: Tiamo043014-116

Sampled: 04/29/14 08:40

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 18:54

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

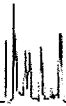
Sequence: 1405970

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.03	1		EPA-150.1

SLD02714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**  
**EPA-150.1**

MW-12-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-05

File ID: Tiamo043014-117

Sampled: 04/29/14 09:15

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:00

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

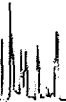
Sequence: 1405970

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.11	1		EPA-150.1

*SC 062714*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-12-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-06

File ID: Tiamo043014-118

Sampled: 04/29/14 09:45

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:06

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence: 1405970

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.63	1		EPA-150.1

8062914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-12-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-07

File ID: Tiamo043014-119

Sampled: 04/29/14 10:15

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:12

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence: 1405970

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.85	1		EPA-150.1

*SC 06211f*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

DUP-4-2Q14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-08

File ID: Tiamo043014-120

Sampled: 04/29/14 10:30

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:18

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence: 1405970

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.85	1		EPA-150.1

*Handwritten signature/initials: 8/26/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-21-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-09

File ID: Tiamo043014-121

Sampled: 04/29/14 12:15

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:25

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence:

1405970

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.91	1		EPA-150.1

*2062714*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-10

File ID: Tiamo043014-122

Sampled: 04/29/14 13:00

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence: 1405970

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.73	1		EPA-150.1

*SC 06/27/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-21-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-11

File ID: Tiamo043014-123

Sampled: 04/29/14 13:35

Prepared: 04/30/14 07:00

Analyzed: 04/30/14 19:36

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXD2576

Sequence: 1405970

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.71	1		EPA-150.1

SC 062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-12

File ID: Tiamo051414-052

Sampled: 04/29/14 14:05

Prepared: 05/14/14 07:30

Analyzed: 05/14/14 15:17

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE1214

Sequence: 1406701

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.64 J	1		EPA-150.1

*8/6/2014*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-150.1**

MW-21-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-13

File ID: Tiamo051414-057

Sampled: 04/29/14 14:40

Prepared: 05/14/14 07:30

Analyzed: 05/14/14 15:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 50 ml / 50 ml

Batch: BXE1215

Sequence:

1406701

Calibration: UNASSIGNED

Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.13 J	1		EPA-150.1

8/06/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**EB-7-4/29/14**

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-02

File ID:

Sampled: 04/29/14 07:15

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 13:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0196

Sequence:

1406197

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

2062914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-12-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-03

File ID:

Sampled: 04/29/14 08:00

Prepared: 05/02/14 13:40

Analyzed: 05/02/14 13:40

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0196

Sequence: 1406197

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

72062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-12-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-04

File ID:

Sampled: 04/29/14 08:40

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence: 1406193

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

82062714





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

**MW-12-3**

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-05

File ID:

Sampled: 04/29/14 09:15

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence: 1406193

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	270	2	D	EPA-160.1

2062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-12-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-06

File ID:

Sampled: 04/29/14 09:45

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence: 1406193

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

*Handwritten:* N 06/27/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-12-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-07

File ID:

Sampled: 04/29/14 10:15

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence: 1406193

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

*5/26/14*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

DUP-4-2Q14

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-08

File ID:

Sampled: 04/29/14 10:30

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence:

1406193

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

82 262714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-21-5

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-09

File ID:

Sampled: 04/29/14 12:15

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence:

1406193

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

82062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-10

File ID:

Sampled: 04/29/14 13:00

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence:

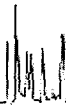
1406193

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

*SL062714*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-21-3

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-11

File ID:

Sampled: 04/29/14 13:35

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence:

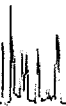
1406193

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	800	5	D	EPA-160.1

SC 06714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-12

File ID:

Sampled: 04/29/14 14:05

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence:

1406193

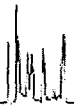
Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	860	5	D	EPA-160.1

*Sc 06/21/14*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/5/2014 9:32:18AM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-160.1**

MW-21-1

Laboratory: BC Laboratories

SDG: 14-09433

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1409433-13

File ID:

Sampled: 04/29/14 14:40

Prepared: 05/02/14 12:30

Analyzed: 05/02/14 12:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 100 ml / 100 ml

Batch: BXE0197

Sequence:

1406193

Calibration: UNASSIGNED

Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	590	3.33	D	EPA-160.1

*SC 06/21/14*

LDC #: 31982A6  
 SDG #: 14-0978433  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III/IV

Date: 6/20/14  
 Page: 1 of 1  
 Reviewer: *AK*  
 2nd Reviewer: *MG*

**METHOD: (Analyte)** Alkalinity (SM2320B), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), 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.	Technical holding times	SW	Sampling dates: 4/29/14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks <i>gms</i>	A SW	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	SWA	Not reviewed for Level III validation.
IX.	Overall assessment of data	A	
X.	Field duplicates	A SW	FD = 6, 7
XI.	Field blanks	SW	EB = 1

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

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

1	EB-7-4/29/14	11	MW-21-2	21	MW-21-4DUP	31	
2	MW-12-5	12	MW-21-1	22	MW-21-3MS	32	
3	MW-12-4	13	EB-7-4/29/14MS	23	MW-21-3MSD	33	
4	MW-12-3	14	EB-7-4/29/14MSD	24	MW-21-3DUP	34	
5	MW-12-2	15	EB-7-4/29/14DUP	25	MW-21-2MS	35	
6	MW-12-1	16	MW-12-5MS	26	MW-21-2MSD	36	
7	DUP-4-2Q14	17	MW-12-5MSD	27	MW-21-2DUP	37	
8	MW-21-5	18	MW-12-5DUP	28	MW-21-1DUP	38	
9	MW-21-4**	19	MW-21-4MS	29		39	PBW1
10	MW-21-3	20	MW-21-4MSD	30		40	PBW2

PBW3

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method See Cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.		✓		<del>pH and Alkalinity</del> HF SW
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
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)	✓			
<b>III. Blanks</b>				
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.	✓	✗		gms
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
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) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2X \text{ CRDL}$ for soil) was used for samples that were $\leq 5X$ the CRDL, including when only one of the duplicate sample values were $\leq 5X$ the CRDL.	✓			
<b>V. Laboratory control samples</b>				
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% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

VALIDATION FINDINGS CHECKLIST

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓	X <sub>ML</sub>		
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓	H		

MG





**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

METHOD: Inorganics, Method See Cover

Conc. units: mg/L

Associated Samples: 1-9

Analyte	Blank ID	Blank ID	Blank Action Limit (mg/L)												
	PB	ICB/CCB (mg/L)		1											
Cl	0.25200		1.2600	0.22											
SO4	0.30800		1.5400	0.34											

METHOD: Inorganics, Method See Cover

Conc. units: mg/L

Associated Samples: 10-12

Analyte	Blank ID	Blank ID	Blank Action Limit (mg/L)												
	PB	ICB/CCB (mg/L)													
Cl	0.17900		0.89500												
SO4	0.34100		1.7050												

METHOD: Inorganics, Method See Cover

Conc. units: mg/L

Associated Samples: 1-10

Analyte	Blank ID	Blank ID	Blank Action Limit (mg/L)												
	PB	ICB/CCB (mg/L)		1											
Cl		0.21600	1.0800	0.22											
SO4		0.34400	1.7200	0.34											

## VALIDATION FINDINGS WORKSHEET Blanks

**METHOD:** Inorganics, Method See Cover

**Conc. units:** mg/L

**Associated Samples:** 12

Analyte	Blank ID	Blank ID	Blank Action Limit (mg/L)										
	PB	ICB/CCB (mg/L)	(mg/L)										
Cl		0.20200	1.0100										
SO4		0.33500	1.6750										

**METHOD:** Inorganics, Method See Cover

**Conc. units:** mg/L

**Associated Samples:** 11

Analyte	Blank ID	Blank ID	Blank Action Limit (mg/L)										
	PB	ICB/CCB (mg/L)	(mg/L)										
Cl		0.20200	1.0100										
SO4		0.33800	1.6900										



**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**Inorganics: Method See Cover

Analyte	Concentration (mg/L)		RPD
	6	7	
Alkalinity	200	200	0
Bicarbonate	250	240	4
Chloride	18	19	5
pH (SU)	7.85	7.85	0
Nitrate-N	0.14	0.14	0
Sulfate	24	25	4
TDS	300	280	7



**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

**METHOD:** Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of NO<sub>3</sub>-N was recalculated. Calibration date: 4-19-2014

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

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       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	Found (units)	True (units)	Recalculated	Reported	Acceptable (Y/N)
					r or %R	r or %R	
Initial calibration	NO <sub>3</sub> -N	Blank	0.000	0.000	1.000000	0.999488	Y
		Standard 1	<del>0.0</del> 0.095	0.028			
		Standard 2	0.451	0.161			
		Standard 3	1.860	0.699			
		Standard 4	5.104	2.018			
		Standard 5	10.152	4.291			
		Standard 6	19.929	9.460			
		Standard 7					
Calibration verification	Cl	CCV(21:34)	50.658 mg/L	50.000mg/L	101	101	Y
Calibration verification	SO <sub>4</sub>	ICV (18:53)	99.936 mg/L	100.000mg/L	99.9	99.9	Y
Calibration verification	NO <sub>2</sub> -N	CCV2	0.48393	0.50000	96.8	96.8	Y

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.

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**METHOD:** Inorganics, Method See Cover

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

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

$$\text{True} = \text{concentration of each analyte in the source.}$$

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

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

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS (19:33)	Laboratory control sample	Cl	52.534	50.000	105	105	Y
MS (12:19)	Matrix spike sample	SO <sub>4</sub>	(SSR-SR) 109.91	101.01	109	110	Y
8	Duplicate sample	NO <sub>3</sub> -N	2.1000	1.9747	5.79	6.22	Y

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.

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## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 14, 2014  
**LDC Report Date:** June 25, 2014  
**Matrix:** Water  
**Parameters:** Hexavalent Chromium  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.

**Sample Delivery Group (SDG):** 14-10817

### Sample Identification

SB-4-5/14/14  
EB-9-5/14/14  
MW-12-5  
MW-12-4  
MW-12-3  
MW-12-2  
MW-12-1  
DUP-4-2Q14  
MW-26-2  
MW-26-1  
SB-4-5/14/14MS  
SB-4-5/14/14MSD  
SB-4-5/14/14DUP

## Introduction

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

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

## **II. Initial Calibration**

All criteria for the initial calibration were met.

## **III. Calibration verification**

Calibration verification frequency and analysis criteria were met.

## **IV. Blanks**

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

## **V. Matrix Spike/Matrix Spike Duplicates**

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

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

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

## **VIII. Sample Result Verification**

Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

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

## **X. Field Duplicates**

Samples MW-12-1 and DUP-4-2Q14 were identified as field duplicates. No hexavalent chromium was detected in any of the samples.



## **XI. Field Blanks**

Sample EB-9-5/14/14 was identified as an equipment blank. No hexavalent chromium was found.

Sample SB-4-5/14/14 was identified as a source blank. No hexavalent chromium was found.

**NASA JPL, 2Q2014**  
**Hexavalent Chromium - Data Qualification Summary - SDG 14-10817**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG 14-10817**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**Hexavalent Chromium - Field Blank Data Qualification Summary - SDG 14-10817**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

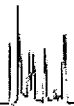
**INORGANIC ANALYSIS DATA SHEET****EPA-7196**

SB-4-5/14/14

Laboratory: BC LaboratoriesSDG: 14-10817Client: Tidewater Inc.Project: JPL- GW Monitoring WellsMatrix: WaterLaboratory ID: 1410817-01File ID: 140514 0850 CR6-226Sampled: 05/14/14 08:00Prepared: 05/15/14 00:38Analyzed: 05/15/14 01:02Solids: 0.00Preparation: No PrepInitial/Final: 20 ml / 20 mlBatch: BXE1423Sequence: 1406802Calibration: UNASSIGNEDInstrument: KONE-1

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

R 06/21/14



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

EB-9-5/14/14

Laboratory: BC Laboratories

SDG: 14-10817

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410817-02

File ID: 140514 0824 NO2-211

Sampled: 05/14/14 08:10

Prepared: 05/15/14 00:38

Analyzed: 05/15/14 00:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1423

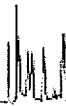
Sequence: 1406802

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

*062714*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-12-5

Laboratory: BC Laboratories

SDG: 14-10817

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410817-03

File ID: 140514 0824 NO2-212

Sampled: 05/14/14 09:10

Prepared: 05/15/14 00:38

Analyzed: 05/15/14 00:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1423

Sequence: 1406802

Calibration: UNASSIGNED

Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00086	1	J	EPA-7196

*Handwritten:* R 062914



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-12-4

Laboratory: BC Laboratories

SDG: 14-10817

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410817-04

File ID: 140514 0824 NO2-213

Sampled: 05/14/14 09:30

Prepared: 05/15/14 00:38

Analyzed: 05/15/14 00:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1423

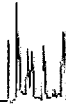
Sequence: 1406802

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

1206274



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-12-3

Laboratory: BC Laboratories

SDG: 14-10817

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410817-05

File ID: 140514 0824 NO2-214

Sampled: 05/14/14 09:45

Prepared: 05/15/14 00:38

Analyzed: 05/15/14 00:38

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1423

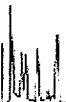
Sequence: 1406802

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

*2 062714*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-12-2

Laboratory: BC Laboratories

SDG: 14-10817

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410817-06

File ID: 140514 0824 NO2-217

Sampled: 05/14/14 09:55

Prepared: 05/15/14 00:38

Analyzed: 05/15/14 00:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1423

Sequence: 1406802

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

*R062714*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-12-1

Laboratory: BC Laboratories

SDG: 14-10817

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410817-07

File ID: 140514 0824 NO2-218

Sampled: 05/14/14 10:10

Prepared: 05/15/14 00:38

Analyzed: 05/15/14 00:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1423

Sequence: 1406802

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

*062914*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-26-2

Laboratory: BC Laboratories

SDG: 14-10817

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410817-10

File ID: 140514 0824 NO2-220

Sampled: 05/14/14 14:20

Prepared: 05/15/14 00:38

Analyzed: 05/15/14 00:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1423

Sequence: 1406802

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

062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:20PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-26-1

Laboratory: BC Laboratories

SDG: 14-10817

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410817-11

File ID: 140514 0824 NO2-221

Sampled: 05/14/14 14:35

Prepared: 05/15/14 00:38

Analyzed: 05/15/14 00:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1423

Sequence: 1406802

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

*062714*

LDC #: 31982B6

## VALIDATION COMPLETENESS WORKSHEET

Date: 6/23/14

SDG #: 14-10817

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: JCK  
2nd Reviewer: MG**METHOD: (Analyte)** Hexavalent Chromium (EPA SW846 Method 7196)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/14/14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/D
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	D
X.	Field duplicates	9MA ND SW	FB = 7, 8
XI	Field blanks	NDA	SB = 1 EB = 2

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

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

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: water

1	SB-4-5/14/14	11	SB-4-5/14/14MS	21	31	
2	<del>EB-9-5/14/14</del> EB-9-5/14/14	12	SB-4-5/14/14MSD	22	32	
3	MW-12-5	13	SB-4-5/14/14DUP	23	33	
4	MW-12-4	14		24	34	
5	MW-12-3	15		25	35	
6	MW-12-2	16		26	36	
7	MW-12-1	17		27	37	
8	DUP-4-2Q14	18		28	38	
9	MW-26-2	19		29	39	
10	MW-26-1	20		30	40	PRW

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 15, 2014  
**LDC Report Date:** June 25, 2014  
**Matrix:** Water  
**Parameters:** Hexavalent Chromium  
**Validation Level:** EPA Level III & IV  
**Laboratory:** BC Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14-10961

### Sample Identification

EB-10-5/15/14  
MW-17-5  
MW-17-4  
MW-17-3  
MW-17-2  
MW-17-1  
MW-21-5  
MW-21-4\*\*  
MW-21-3  
MW-21-2  
MW-21-1  
MW-17-1MS  
MW-17-1MSD  
MW-17-1DUP  
MW-21-4MS  
MW-21-4MSD  
MW-21-4DUP

\*\*Indicates sample underwent EPA Level IV review

## Introduction

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

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

## **II. Initial Calibration**

All criteria for the initial calibration were met.

## **III. Calibration Verification**

Calibration verification frequency and analysis criteria were met.

## **IV. Blanks**

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

## **V. Matrix Spike/Matrix Spike Duplicates**

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

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC.

## **VII. Laboratory Control Samples**

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

## **VIII. Sample Result Verification**

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.

## **IX. Overall Assessment of Data**

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



## **X. Field Duplicates**

No field duplicates were identified in this SDG.

## **XI. Field Blanks**

Sample EB-10-5/15/14 was identified as an equipment blank. No hexavalent chromium was found.



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/11/2014 12:34:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

EB-10-5/15/14

Laboratory: BC Laboratories

SDG: 14-10961

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410961-01

File ID: 140515 2244 CR6-009

Sampled: 05/15/14 06:45

Prepared: 05/15/14 22:44

Analyzed: 05/15/14 22:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1437

Sequence: 1406879

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

12062714



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/11/2014 12:34:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-17-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-10961</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1410961-02</u> File ID: <u>140515 2244 CR6-010</u>
Sampled: <u>05/15/14 08:25</u>	Prepared: <u>05/15/14 22:44</u> Analyzed: <u>05/15/14 22:44</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u> Initial/Final: <u>20 ml / 20 ml</u>
Batch: <u>BXE1437</u> Sequence: <u>1406879</u>	Calibration: <u>UNASSIGNED</u> Instrument: <u>KONE-1</u>

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

HL 05-714



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/11/2014 12:34:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-17-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-10961</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1410961-03</u>	File ID: <u>140515 2244 CR6-011</u>	
Sampled: <u>05/15/14 08:45</u>	Prepared: <u>05/15/14 22:44</u>	Analyzed: <u>05/15/14 22:44</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1437</u>	Sequence: <u>1406879</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0020	1		EPA-7196

*2 06/21/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/11/2014 12:34:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

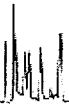
**EPA-7196**

MW-17-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-10961</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1410961-04</u>	File ID: <u>140515 2244 CR6-012</u>	
Sampled: <u>05/15/14 09:10</u>	Prepared: <u>05/15/14 22:44</u>	Analyzed: <u>05/15/14 22:44</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1437</u>	Sequence: <u>1406879</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0018	1	J	EPA-7196

*Handwritten signature: 262914*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/11/2014 12:34:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-17-2

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-10961</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1410961-05</u>	File ID: <u>140515 2244 CR6-015</u>	
Sampled: <u>05/15/14 10:25</u>	Prepared: <u>05/15/14 22:44</u>	Analyzed: <u>05/15/14 22:47</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1437</u>	Sequence: <u>1406879</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*062914*



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-17-1

Laboratory: BC Laboratories

SDG: 14-10961

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410961-06

File ID: 140515 2244 CR6-005

Sampled: 05/15/14 10:40

Prepared: 05/15/14 22:44

Analyzed: 05/15/14 22:44

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1437

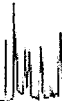
Sequence: 1406879

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

*DL 062714*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/11/2014 12:34:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-21-5

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-10961</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1410961-08</u>	File ID: <u>140516 0730 CR6-009</u>	
Sampled: <u>05/15/14 14:00</u>	Prepared: <u>05/16/14 07:30</u>	Analyzed: <u>05/16/14 07:30</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1438</u>	Sequence: <u>1406901</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

*Handwritten signature or initials*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-21-4

Laboratory: BC Laboratories

SDG: 14-10961

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410961-09

File ID: 140516 0730 CR6-005

Sampled: 05/15/14 14:20

Prepared: 05/16/14 07:30

Analyzed: 05/16/14 07:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1438

Sequence: 1406901

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

062714



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/11/2014 12:34:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-21-3

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-10961</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1410961-10</u>
Sampled: <u>05/15/14 14:35</u>	Prepared: <u>05/16/14 07:30</u>
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>
Batch: <u>BXE1438</u>	Sequence: <u>1406901</u>
	Calibration: <u>UNASSIGNED</u>
	File ID: <u>140516 0730 CR6-010</u>
	Analyzed: <u>05/16/14 07:30</u>
	Initial/Final: <u>20 ml / 20 ml</u>
	Instrument: <u>KONE-1</u>

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

062714



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:34:58PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-21-2

Laboratory: BC Laboratories

SDG: 14-10961

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1410961-11

File ID: 140516 0730 CR6-011

Sampled: 05/15/14 14:45

Prepared: 05/16/14 07:30

Analyzed: 05/16/14 07:30

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1438

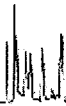
Sequence: 1406901

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

9 062714



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/11/2014 12:34:58PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-21-1

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-10961</u>		
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>		
Matrix: <u>Water</u>	Laboratory ID: <u>1410961-12</u>	File ID: <u>140516 0730 CR6-012</u>	
Sampled: <u>05/15/14 14:55</u>	Prepared: <u>05/16/14 07:30</u>	Analyzed: <u>05/16/14 07:30</u>	
Solids: <u>0.00</u>	Preparation: <u>No Prep</u>	Initial/Final: <u>20 ml / 20 ml</u>	
Batch: <u>BXE1438</u>	Sequence: <u>1406901</u>	Calibration: <u>UNASSIGNED</u>	Instrument: <u>KONE-1</u>

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

SC 062714

LDC #: 31982C6  
 SDG #: 14-10961  
 Laboratory: BC Laboratories, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level III/IV

Date: 6/23/14  
 Page: 1 of 1  
 Reviewer: JK  
 2nd Reviewer: MG

**METHOD: (Analyte)** Hexavalent Chromium (EPA SW846 Method 7196)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/15/14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	<del>A</del> SW	Not reviewed for Level III validation.
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	ND	EB = 1

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

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

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

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method 7196) )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓		✗	gms
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)			✓	
<b>III. Blanks</b>				
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.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
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.	✓			85-115
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.	✓			
<b>V. Laboratory control samples</b>				
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% (85-115% for Method 300.0) QC limits?	✓			85-115
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

**VALIDATION FINDINGS CHECKLIST**

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.			✓	
Target analytes were detected in the field duplicates.			✓	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.		✓		

LDC #: 31982CG

**Validation Findings Worksheet  
Initial and Continuing Calibration Calculation Verification**

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

Method: Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of Hexavalent Chromium was recalculated. Calibration date: 1/5/14

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

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. Found (mg/L)	Area True (mg/L)	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	Hexavalent Chromium	s1	0.001	0.000000	0.999950	0.999996	Y
		s2	0.003	0.002000			
		s3	0.005	0.005000			
		s4	0.021	0.025000			
		s5	0.040	0.050000			
		s6	0.078	0.100000			
Calibration verification		CCV(22:44)	0.054240	0.050000	108	99.7	Y
Calibration verification		CCV(07:30)	0.054240	0.050000	100	100	Y
Calibration verification	✓	CCV(22:47)	0.054240	0.050000	108	99.6	Y

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.



**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**METHOD:** Inorganics, Method See Cover

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

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

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

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

Sample ID	Type of Analysis	Element	mg/L Found / S (units)	mg/L True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS	Laboratory control sample	Hexavalent Chromium	0.052934	0.050000	106	99.0	Y
15, 16 <del>12, 13</del>	Matrix spike sample	↓	(SSR-SR) 0.052934	0.052632	101	104	Y
6, 14	Duplicate sample	↓	-0.00076	-0.00076	0	0	Y

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.



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

**Project/Site Name:** NASA JPL, 2Q2014  
**Collection Date:** May 16, 2014  
**LDC Report Date:** June 25, 2014  
**Matrix:** Water  
**Parameters:** Hexavalent Chromium  
**Validation Level:** EPA Level III  
**Laboratory:** BC Laboratories, Inc.

**Sample Delivery Group (SDG):** 14-11053

**Sample Identification**

EB-11-5/16/14  
MW-19-5  
MW-19-4  
EB-11-5/16/14MS  
EB-11-5/16/14MSD  
EB-11-5/16/14DUP

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

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.

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

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

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

## **II. Initial Calibration**

All criteria for the initial calibration were met.

## **III. Calibration verification**

Calibration verification frequency and analysis criteria were met.

## **IV. Blanks**

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

## **V. Matrix Spike/Matrix Spike Duplicates**

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

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

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

## **VIII. Sample Result Verification**

Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

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

## **X. Field Duplicates**

No field duplicates were identified in this SDG.

## **XI. Field Blanks**

Sample EB-11-5/16/14 was identified as an equipment blank. No hexavalent chromium was found.

**NASA JPL, 2Q2014**  
**Hexavalent Chromium - Data Qualification Summary - SDG 14-11053**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG 14-11053**

No Sample Data Qualified in this SDG

**NASA JPL, 2Q2014**  
**Hexavalent Chromium - Field Blank Data Qualification Summary - SDG 14-11053**

No Sample Data Qualified in this SDG



Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:35:39PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

EB-11-5/16/14

Laboratory: BC Laboratories

SDG: 14-11053

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1411053-01

File ID: 140516 2119 CR6-005

Sampled: 05/16/14 08:00

Prepared: 05/16/14 21:19

Analyzed: 05/16/14 21:20

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1512

Sequence: 1406961

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

*Handwritten signature: K 062714*





Tidewater Inc.  
3761 Attucks Drive  
Powell, OH 43065

Reported: 6/11/2014 12:35:39PM  
Project: JPL- GW Monitoring Wells  
Project Number: 2nd Qtr.  
Project Manager: David Conner

**INORGANIC ANALYSIS DATA SHEET**

**EPA-7196**

MW-19-5

Laboratory: BC Laboratories

SDG: 14-11053

Client: Tidewater Inc.

Project: JPL- GW Monitoring Wells

Matrix: Water

Laboratory ID: 1411053-02

File ID: 140516 2119 CR6-009

Sampled: 05/16/14 08:30

Prepared: 05/16/14 21:19

Analyzed: 05/16/14 21:20

Solids: 0.00

Preparation: No Prep

Initial/Final: 20 ml / 20 ml

Batch: BXE1512

Sequence: 1406961

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

*Handwritten signature: R 06/27/14*



Tidewater Inc. 3761 Attucks Drive Powell, OH 43065	Reported: 6/11/2014 12:35:39PM Project: JPL- GW Monitoring Wells Project Number: 2nd Qtr. Project Manager: David Conner
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**INORGANIC ANALYSIS DATA SHEET**  
**EPA-7196**

MW-19-4

Laboratory: <u>BC Laboratories</u>	SDG: <u>14-11053</u>
Client: <u>Tidewater Inc.</u>	Project: <u>JPL- GW Monitoring Wells</u>
Matrix: <u>Water</u>	Laboratory ID: <u>1411053-03</u>
Sampled: <u>05/16/14 08:50</u>	File ID: <u>140516 2119 CR6-010</u>
Solids: <u>0.00</u>	Prepared: <u>05/16/14 21:19</u>
Batch: <u>BXE1512</u>	Analyzed: <u>05/16/14 21:20</u>
Sequence: <u>1406961</u>	Initial/Final: <u>20 ml / 20 ml</u>
	Preparation: <u>No Prep</u>
	Calibration: <u>UNASSIGNED</u>
	Instrument: <u>KONE-1</u>

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

*Handwritten signature or initials: R 062114*

LDC #: 31982D6

**VALIDATION COMPLETENESS WORKSHEET**

Date: 6/23/14

SDG #: 14-11053

Level III

Page: 1 of 1

Laboratory: BC Laboratories, Inc.

Reviewer: [Signature]

2nd Reviewer: MG

**METHOD: (Analyte)** Hexavalent Chromium (EPA SW846 Method 7196)

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

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/10/14 5/16/14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/D
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	ND	EB = 1

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

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

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *Water*

1	EB-11-5/16/14	11		21		31	
2	MW-19-5	12		22		32	
3	<del>MW-16-4</del> 19-4	13		23		33	
4	EB-11-5/16/14MS	14		24		34	
5	EB-11-5/16/14MSD	15		25		35	
6	EB-11-5/16/14DUP	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	PBW

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_